

## Taxonomy and Natural History of the Microgastrine Genus *Alphomelon* Mason (Hymenoptera: Braconidae)

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**Abstract.**—The New World endemic genus *Alphomelon* Mason (Braconidae: Microgastrinae) is revised for the first time. This revision includes a redescription of the genus, redescrptions of its named species and descriptions of new species with illustrations of diagnostic characters, an illustrated key to *Alphomelon* species, and a summary of their natural history as parasitoids of hesperiid caterpillars. *Alphomelon* is a monophyletic group containing seventeen species, four of which were previously described: *Alphomelon disputabile* (Ashmead) (Argentina to U.S.A.), *A. nigriceps* (Ashmead) (Caribbean islands and surrounding countries), *A. talidicida* (Wilkinson) (Brazil to Costa Rica), and *A. conformis* (Muesebeck) (Venezuela to Costa Rica). Thirteen species are described as new: *Alphomelon arecaphile* Deans (Brazil to Costa Rica), *A. brachymacher* Deans (Brazil and Peru to Costa Rica), *A. bromeliphile* Deans (Costa Rica to Mexico), *A. citroloma* Deans (Argentina to Costa Rica), *A. crocostethus* Deans (Brazil to Colombia), *A. melanoscelis* Deans (Brazil to Mexico), *A. nanosoma* Deans (Brazil to Mexico), *A. paurogenum* Deans (Argentina and Chile), *A. rhyssocercus* Deans (Argentina to Panama), *A. simpsonorum* Deans (Paraguay to Costa Rica), *A. pyrrhogluteum* Deans (Argentina), *A. wimmiewertzae* Deans (Costa Rica to Canada), and *A. xestopyga* Deans (Costa Rica).

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Distributed throughout most of the temperate and tropical New World, the members of the genus *Alphomelon* Mason parasitize skipper larvae (Hesperiidae) and are frequently collected and often reared. Although members of this genus are easy to recognize due to the white coloration on their genae (which gives the genus its name), identification at the species level has remained difficult owing to the absence of keys, adequate descriptions, and illustrations. This revision updates the classification of the species within *Alphomelon*, and includes a brief discussion of its taxonomic history, biology, and distribution together with descriptions of thirteen new species, redescrptions of four previously named species, illustrations of diagnostic characters, and a key to all species known to date.

Ashmead described two species of *Alphomelon* in 1900 from the island of St. Vincent in the Caribbean as *Urogaster nigriceps* Ashmead and *Urogaster disputabilis* Ashmead. In 1920 Muesebeck synonymized *Urogaster* under *Apanteles* Förster and reassigned *nigriceps* and *disputabilis* (renamed *disputabile*) accordingly. Since then only two other species have been described: *Apanteles talidicida* Wilkinson from Guyana (Wilkinson 1931) and *Apanteles conformis* Muesebeck from Venezuela (Muesebeck 1958). Mason's (1981) reclassification of *Apanteles* led to his creation of the new genus *Alphomelon* comprising *disputabile*, *nigriceps*, and *talidicida*. Mason apparently overlooked *conformis* when reassigning species, but morphology, color patterns, and biology suggest that it also belongs in *Alphomelon*.

Collections often contain many specimens of *Alphomelon*, particularly if they are rich in New World malaise trap samples. However, due to the paucity of microgastrine taxonomists and a lack of illustrations or keys these specimens are usually located in the "unsorted" drawers or lumped with *Apanteles*. This lack of expertise, in combination with the large influx of specimens from Janzen's caterpillar-parasitoid rearing project in northwestern Costa Rica (Janzen and Hallwachs 2002, Schauff and Janzen 2001, Burns and Janzen 2001), clarified the need for a taxonomic revision of *Alphomelon*.

#### NATURAL HISTORY AND DISTRIBUTION OF *ALPHOMELON*

Host records for the few reared specimens in major collections indicate that species of *Alphomelon* invariably parasitize hesperiine skipper larvae (Lepidoptera: Hesperiidae) feeding mostly on monocots. There is one doubtful rearing record from a dicot-eating caterpillar: DHJ voucher 98-SRNP-4564 (Janzen and Hallwachs 2002). The majority of museum records are from skipper larvae feeding on agricultural crops such as corn, sugar cane, bananas, and canna. Two of these hosts, *Lerema* sp. and *Calpododes ethilius*, are also reported to feed on peanuts (extraordinarily doubtful) and wheat (according to caterpillar food plant records in the USNM), but *Alphomelon* has never been recorded from skipper larvae on these host plants.

In contrast to the dearth of museum host records (which often have questionable accuracy), D. H. Janzen and W. Hallwachs' (2002) caterpillar-parasitoid rearing project in Costa Rica (voucher number information accessible at Janzen and Hallwachs' website: <http://janzen.sas.upenn.edu>) adds abundant and continuous new records of host caterpillars and food plants (see Table 1).

*Alphomelon* species exhibit a diverse array of ovipositor types ranging from short (the exerted portion shorter than the hind

basitarsus; see Figure 6a,b) to long (the exerted portion as long as the hind tibia) with varying degrees of curvature. More than half the species are equipped with a "typical" ovipositor of medium length and medium curvature (Fig. 6c), including most of the reared species. Species also differ with respect to the number of spines (from one to four) on the tarsal claws (Fig. 3). Since skipper larvae typically live in leaf-rolls lined with silk (Hogue 1993), further exploration of their ovipositors and tarsal claws may provide clues into oviposition behavior, host species escape biology, and the host environment.

This genus occurs only in the New World (Mason 1981). The highest concentration of species are in Amazonia and southern Central America where hesperiids are also extremely speciose (Hogue 1993).

#### PHYLOGENETIC PLACEMENT OF *ALPHOMELON*

Mason (1981; also Walker et al. 1990) used morphological characters to place *Alphomelon* in the *Apanteles* genus-group (*Apanteles*, *Papanteles*, *Alphomelon*, and *Dasyllagon*) within the tribe Apantelini. Reanalysis of morphology combined with molecular data (Mardulyn and Whitfield 1999, Whitfield et al. 2002) maintains this clade with *Alphomelon* as the sister group to *Apanteles*, *Dasyllagon*, and/or *Dolichogenidea*. Available host information suggests that most species in these other three genera parasitize concealed microlepidoptera in rolled leaves (Mason 1981). *Alphomelon*, however, differs in parasitizing one subfamily of macrolepidoptera that also live in leaf rolls (Mason 1981).

#### MATERIAL

More than 2000 specimens were borrowed for this revision from the following institutions or individuals: (AEI) American Entomological Institute Collection, Gainesville, FL, USA, David B. Wahl; (CNC) Canadian National Collection, Bio-

systematics Research Centre, Agriculture Canada, Ottawa, Ontario, Canada, Henri Goulet; (DHJ) Department of Biology, University of Pennsylvania, Philadelphia, PA, USA, D. H. Janzen (these specimens were deposited in: AEI, CNC, INBIO, INHS, MCZ, TAMU, USNM, UWY); (INBIO) Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica, Carolina Godoy; (INHS) Illinois Natural History Survey, Champaign, IL, USA, Colin Favret; (HUMB) Alexander von Humboldt Biological Resources Research Institute, Bogotá, Colombia, Fernando Fernández; (MCZ) Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA, Stefan Cover; (NHM) Natural History Museum, London, UK, Mike Fitton; (TAMU) Texas A and M University, College Station, TX, USA, Robert A. Wharton; (UCD) University of California at Davis, Davis, CA, USA, Lynn Kimsey; (USNM) United States National Museum, Smithsonian Institution, Washington, DC, USA, David Smith; (UWY) University of Wyoming, Laramie, WY, USA, Scott R. Shaw. Included in this material were the holotypes for *A. disputabile*, *A. nigriceps*, and *A. conformis* from USNM. A cotype for *A. talidicida* was examined during a visit to NHM but not borrowed.

### METHODS

Morphological terms follow those of Sharkey and Wharton (1997). Additional terms include: lunule (Mason 1981), stematicum (Shaw and Huddleston 1991), lateral and anterior scutellar furrows (to distinguish between scutellar furrows in Sharkey and Wharton 1997; see Fig. 1), medial scutellar area (area between lateral scutellar furrows; see Fig. 1), anterior propodeal area (propodeal areas anteriorly left and right of areola; see Fig. 1), posterior propodeal area (propodeal areas posteriorly left and right of areola; see Fig. 1), axillary projections (rugose projections apical to lunules; see Fig. 1), lateral metanotal depression (refers to pits left and right

of posterior scutellar depression; see Fig. 1), and petiolar ridge (medial carina on petiole; see Fig. 1). Quicke et al. (1999) was used for ovipositor structural terms. Head width, medial ocellar diameter, lateral ocellar diameter, lateral ocellar line, posterior ocellar line, ocular ocellar line, hind tarsal length, and ovipositor sheath length followed those measurements used by Williams (1988).

Only specimens closely matching the holotype in all morphological aspects and/or males from the same series were designated and labeled as paratypes. All specimens examined for this revision were supplied with species determination labels before the loans were returned.

### DIAGNOSTIC CHARACTERS AND SPECIES KEY

Although the conspicuous white coloration of the genae helps to define *Alphomelon*, one should not rely on that character alone for identification. Several species of Neotropical *Cotesia* (personal observation of museum collections and reared riodinid parasitoids) also have white patches on the genae, as do many *Dolichogenidea* and other genera in the Old World tropics (Mason 1981; personal observation). Additional characters that distinguish *Alphomelon* from other genera with white genae include: fully sclerotized hypopygium, presence of petiolar ridge, lack of wing areolet, and fully carinate propodeum with areola.

Color patterns are the most obvious and perhaps easiest characters to use for diagnosis of certain species. Conspicuous body segment coloration of orange or yellow helps distinguish between *A. nigriceps* (metasoma and mesosoma yellow), *A. crocostethus* (mesonotum orange), *A. pyrrhoglutum* (metasoma yellow), and *A. simpsonorum* (metasomal tergites I, II, and III yellow). The size of white spots on the genae also varies from moderately reduced (*A. winniewertzae*, *A. paurogenum*) to extensive (*A. bromeliphile*, *A. brachymacher*) (see Fig.

Table 1. Host and host plant information for *Alphomelon* species.

<i>Alphomelon</i>	Host Species	Host Plant Species	Host Plant Family	Reference
<i>arecaphile</i>	<i>Carystoides basoches</i>	<i>Chamaedorea costaricana</i> <i>Chamaedorea tepejilote</i>	Arecaceae	Janzen and Hallwachs 2001
	<i>Synale cynaxa</i>	<i>Chamaedorea costaricana</i> <i>Chamaedorea tepejilote</i>	Arecaceae	
<i>brachynachier</i>	no known host records			
<i>bromeliophile</i>	<i>Neoxeniades scipio</i>	<i>Bromelia pinguin</i> <i>Achmaea magdalenae</i>	Bromeliaceae	Janzen and Hallwachs 2001
<i>citroloma</i>	no known host records			
<i>conformis</i>	Hesperiinae	<i>Canna indica</i>	Cannaceae	Muesebeck 1958
	Hesperiinae	<i>Panicum pilosum</i>	Poaceae	(specimens in INBIO)
<i>crocostellus</i>	Hesperiinae	<i>Saccharum officinarum</i> (suger cane)	Poaceae	(specimens in USNM)
<i>disputabile</i>	<i>Lerema</i> spp.	<i>Oryza latifolia</i>	Poaceae	(specimens in USNM)
	<i>Cynaenes trebius</i>	(grass)	Poaceae	Janzen and Hallwachs 2001
<i>melanoscelis</i>	Hesperiinae	(grass)	Poaceae	Janzen and Hallwachs 2001
	Hesperiinae	(sedge)	Cyperaceae	
<i>nanosoma</i>	<i>Cobalopsis</i> sp.	<i>Oryza latifolia</i>	Poaceae	Janzen and Hallwachs 2001
<i>nigriceps</i>	Hesperiinae	<i>Canna</i> sp.	Cannaceae	(specimens in USNM)
	Hesperiinae	<i>Zea mays</i> (corn)	Poaceae	
<i>paurogenum</i>	no known host records			
<i>pyrrhogluteum</i>	no known host records			
<i>rhyssocercus</i>	no known host records			
<i>simpsonorum</i>	Hesperiinae	grass	Poaceae	Janzen and Hallwachs 2001
<i>talidicida</i>	<i>Talides sergestus</i>	<i>Heliconia latispatha</i>	Heliconiaceae	Janzen and Hallwachs 2001
	<i>Talides sinois</i>	<i>Heliconia latispatha</i> <i>Musa cavendishii</i>	Heliconiaceae Musaceae	Janzen and Hallwachs 2001
<i>winniewertzae</i>	<i>Calpodes ethlius</i>	<i>Thalia geniculata</i>	Marantaceae	Janzen and Hallwachs 2001
	<i>Euphyes</i> sp. <i>Euphyes vestries</i>	?	?	(specimens in USNM)

Table 1. Continued.

<i>Alphomelon</i>	Host Species	Host Plant Species	Host Plant Family	Reference
<i>xestopyga</i>	<i>Calpodex ethlius</i>	<i>Maranta arundinacea</i> ,	Marantaceae	Janzen and Hallwachs 2001
		<i>Calathea macrosepala</i>		
		<i>Thalia geniculata</i>		
	<i>Rhinthon cubana</i>	<i>Maranta arundinacea</i> ,	Marantaceae	Janzen and Hallwachs 2001
		<i>Calathea macrosepala</i>		
		<i>Calathea lutea</i>		
	<i>Saliana fusta</i>	<i>Maranta arundinacea</i>	Marantaceae	Janzen and Hallwachs 2001
		<i>Calathea macrosepala</i>		
	<i>Cyneia irma</i>	<i>Maranta arundinacea</i>	Marantaceae	Janzen and Hallwachs 2001
		<i>Calathea panamensis</i>		
	<i>Quinta cannae</i>	<i>Thalia geniculata</i>	Marantaceae	Janzen and Hallwachs 2001

4). Additional characters include coloration of legs (completely orange or barred with black), wings (smoky or hyaline), ovipositor (reddish-orange or yellow), and face (with a light brown spot or completely black). Although these color patterns appear to be largely diagnostic, one should use caution when relying on color characters alone since temperature during development is known to influence adult appearance in braconids (Liu and Carver 1982).

Other diagnostic morphological characters frequently referred to in this revision concern hind wing vein cu-a curvature (see Fig. 2), tarsal claw spine number (see Fig. 3), ovipositor length and curvature (see Fig. 6), lunule shape, tegula shape and color, propodeal sculpturing (areola open or closed anteriorly), metasomal tergite I and II shape, and sculpturing of the head and mesoscutum.

Larval characters were not examined in this revision due to limited availability of cast skins for most species, but Pentead-Dias (1985) describes larval features for one species in the genus.

In the key to species, values given in parentheses refer to the percentage of specimens examined exhibiting that particular characteristic. The phrase “cheek patches” refers to the white spots on genae. The current abundance of species in museum collections (the museums mentioned under Material) is designated as: rare (fewer than 10 total specimens), uncommon (10–20 specimens), common (20–100 specimens), or abundant (more than 100 specimens). A brief description of the species’ natural history and range follows the species names in the key. Since most males (>75%) are difficult to identify unambiguously to species, the key is based on female specimens.

KEY TO FEMALE NEW WORLD SPECIES OF <i>ALPHOMELON</i>	
1 Mesonotum orange-yellow; tarsal claws with 1 spine (Fig. 3a); wings infumated; cheek patches reduced (Fig. 4f), with white not extending to post-genal part of occiput . . . .	2
– Mesonotum dark brown to black; tarsal claws variable; wings variably colored; cheek patches variable . . . . .	3
2 Metasoma and mesosoma yellow-orange . . . . .	<i>A. nigriceps</i> (Ashmead)

(Common. Solitary parasitoid reared from *Calpodex* spp. on *Canua indica* and unidentified sp. on corn (*Zea mays*). Distributed throughout Caribbean islands and countries/states surrounding Caribbean and reaching as far north as North Carolina, U.S.A.)

- Metasoma black, mesosoma with mesonotum only orange . . . *A. crocostethus* Deans, n. sp.  
(Uncommon. Solitary parasitoid reared from hesperiid on sugar cane (*Saccharum officinarum*).  
Distributed from southern Caribbean islands to Colombia, and Brazil)
- 3 Metasoma with at least lateral tergites and sternites (except hypopygium in some) yellow;  
petiole rectangular and elongate (Fig. 5a); posterior portion of hind wing cu-a angled  
toward body (Fig. 2c); tarsal claws with 2 spines (Fig. 3b) . . . . . 4
- Metasoma entirely brown to black; petiole variable; hind wing cu-a variable; tarsal claws  
with 1–4 spines . . . . . 6
- 4 Metasoma entirely yellow except medial  $\frac{1}{3}$  of hypopygium and tergum VII black; me-  
sopleuron nitid except for setae . . . . . *A. pyrrhoglutenum* Deans, n. sp.  
(Rare. Biology unknown. Collected in Argentina only)
- Metasoma less than 50% yellow; mesopleuron punctate . . . . . 5
- 5 Petiole and tergites I–III yellow; petiolar ridge weakly represented; malar space not con-  
vex; pale cheek patch not extending to clypeus . . . . . *A. simpsonorum* Deans, n. sp.  
(Rare. Solitary parasitoid reared from Hesperinae on a grass (Poaceae) in Costa Rica. Distributed  
from Costa Rica to Paraguay)
- Petiole and Tergites I–III black; medial petiolar ridge strongly represented; malar space  
distinctly convex; pale cheek patch extending to clypeus (Fig. 4c) (80%) . . . . .  
. . . . . *A. citroloma* Deans, n. sp.  
(Common. Biology unknown. Distributed from Costa Rica to Argentina)
- 6 Exserted portion of ovipositor shorter than hind basitarsus (Fig. 6a,b); tarsal claws with  
4 spines (Fig. 3d); hind wing cu-a strongly curved towards body (Fig. 2b); cheek patch-  
es extending onto clypeus (Fig. 4a,b) (75%) . . . . . 7
- Exserted portion of ovipositor longer than hind basitarsus (Fig. 6c,d,e); tarsal claws vari-  
able; hind wing cu-a variable; cheek patches variable . . . . . 8
- 7 Ovipositor less than  $\frac{1}{2}$  length of basitarsus (Fig. 6a), orange in color; ovipositor sheaths  
expanded apically (Fig. 6a); face black (Fig. 4b); antennae dark brown . . . . .  
. . . . . *A. brachymacher* Deans, n. sp.  
(Common. Biology unknown. Distributed from Costa Rica to Ecuador, Peru and Brazil.)
- Ovipositor longer than  $\frac{1}{2}$  length of basitarsus (Fig. 6b), yellow-orange in color; ovipositor  
sheaths not expanded apically (Fig. 6b); face with light brown spot (Fig. 4a); antennae  
light brown . . . . . *A. bromeliphile* Deans, n. sp.  
(Rare. Gregarious parasitoid reared from *Neoxeniades scipio* on *Bromelia pinguin* and *Achmaea mag-  
dalenae* (Bromeliaceae) in Costa Rica. Distributed from southern Mexico to Costa Rica)
- 8 Hind legs black except basal  $\frac{1}{2}$  of tibia orange; body size large (~5mm); tarsal claws with  
4 spines (Figure 3d); petiole costate with ridge strongly represented (Figure 5b) . . . . .  
. . . . . *A. melanoscelis* Deans, n. sp.  
(Common. Solitary parasitoid reared from hesperiines on grasses (Poaceae) in Costa Rica. Dis-  
tributed from southern Mexico to Brazil)
- Hind leg coloration variable but femur never completely black; body size variable (85%  
<5mm); tarsal claws with 1–4 spines; petiole variable . . . . . 9
- 9 Cheek patches neither extending onto the clypeus nor to the occiput (Fig. 4g,h) (90%), if  
extending to occiput then mesoscutum and head strongly punctate; tarsal claws with  
1 spine (Fig. 3a); hind wing cu-a angled posteriorly towards body (Fig. 2c) . . . . . 10
- Cheek patches extending to occiput and often onto clypeus (75%); tarsal claws variable;  
hind wing cu-a variable . . . . . 11
- 10 Wings darkly infumated (75%); head, mesoscutum, and medial scutellar area weakly

- punctate; apical  $\frac{1}{5}$  of hind tibia and femur black; labrum black ..... *A. paurogenum* Deans, n. sp.  
(Uncommon. Biology unknown. Collected in Argentina and Chile)
- Wings hyaline; head, mesoscutum and medial scutellar area strongly punctate; hind femur and tibia entirely orange; labrum yellow ..... *A. winniewertzae* Deans, n. sp.  
(Common. Solitary parasitoid reared from *Calpodes ethlius* on *Thalia geniculata* (Marantaceae) in Costa Rica and *Euphyes* spp. in Texas, U.S.A. Widely distributed throughout eastern U.S.A. and Canada south to Costa Rica.)
- 11 Tarsal claws with 1 spine (95%; Fig. 3a); cheek patches not extending onto clypeus (75%); hind wing vein cu-a angled posteriorly towards body (Fig. 2c) ..... *A. disputabile* (Ashmead)  
(Abundant. Solitary parasitoid reared from *Lerema* spp. on *Oryza latifolia* (Poaceae), *Cynaeus trebius* on grasses (Poaceae), and perhaps once on *Nisoniades castolus* (a pyrgine hesperiid) on *Vernonia patens* (Asteraceae) in Costa Rica. Widely distributed from Texas, U.S.A., throughout Caribbean, south to Argentina)
- Tarsal claws with 2–4 spines; cheek patches usually extending onto clypeus (75%); hind wing vein cu-a variable ..... 12
- 12 Tegulae black; petiolar ridge strongly bifurcating (Fig. 5c) ..... *A. conformis* (Muesebeck)  
(Uncommon. Reared from hesperiid on *Canna indica* (Cannaceae) in Venezuela. Distributed from Costa Rica to Venezuela.)
- Tegulae translucent-yellow; petiolar ridge not strongly bifurcating ..... 13
- 13 Petiole strongly costate (Fig. 5d); tergite II rugose raised, medially (Fig. 5d) ..... *A. rhyssocercus* Deans, n. sp.  
(Uncommon. Biology unknown. Distributed from Panama to Argentina)
- Petiole not strongly costate; tergite II rugulose or nitid ..... 14
- 14 Ovipositor thicker than  $\frac{1}{2}$  basitarsus width (Fig. 6d), hind wing cu-a straight (Fig. 2d); tegulae whitish; stigma triangular (Fig. 2a) ..... *A. arecaphile* Deans, n. sp.  
(Common. Gregarious parasitoid reared from *Carystoides basoches* and *Synale cynaxa* on *Chamaedorea* spp. (Arecaceae) in Costa Rica. Distributed from Costa Rica to Brazil.)
- Ovipositor thinner than  $\frac{1}{2}$  basitarsus width; hind wing cu-a variable, but not straight; tegulae yellow; stigma rounded (Fig. 2b) ..... 15
- 15 Petiole with ridge present (Fig 5c); ovipositor straight, long, and thin,  $\frac{1}{3}$  as thick as hind basitarsus, with exerted portion  $>1.4\times$  hind basitarsus length (Fig. 6e); hind wing cu-a strongly angled at midpoint towards body (Fig. 2e); body size medium to large ( $\sim 4$ –5mm) ..... *A. talidicida* (Wilkinson)  
(Common. Gregarious parasitoid reared from *Talides* spp. on *Heliconia* (Heliconiaceae) and *Musa* spp. (Musaceae) in Costa Rica. Distributed throughout Caribbean islands and from Costa Rica to Brazil)
- Petiole with only an inconspicuous depression (Fig. 5e,f); ovipositor obviously decurved,  $\frac{1}{2}$  as thick as hind basitarsus, with exerted portion  $<1.4\times$  hind basitarsus length; hind wing cu-a variable; body size small to medium ..... 16
- 16 Hind wing vein cu-a evenly curved towards body (Fig. 2f); body size small ( $<3$ mm); tarsal claws with 2 spines (Fig. 3b); ovipositor  $\frac{1}{2}$  as thick as hind basitarsus; cheek patches not extending onto clypeus (90%); petiole mostly nitid with petiolar ridge represented by slight depression (Fig. 5e) ..... *A. nanosoma* Deans, n. sp.  
(Common. Gregarious parasitoid reared from *Cobalopsis* sp. on grass (Poaceae) in Costa Rica. Distributed from Mexico to Ecuador and Brazil)
- Hind wing cu-a sharply angled at midpoint towards body (Fig. 2e); body size medium (3–4mm); tarsal claws with 3–4 spines (Fig. 3c, d); ovipositor  $\frac{1}{3}$  as thick as hind basitarsus; cheek patches extending onto lateral portions of clypeus (as in Fig. 4d); petiole rugulose, slightly punctate with petiolar ridge represented by raised bump with slight depression (Fig. 5f) ..... *A. xestopyga* Deans, n. sp.

(Abundant. Gregarious parasitoid reared from *Calpodes ethlius* on *Maranta arundinacea*, *Calathea macrosepala*, *Thalia geniculata* (Marantaceae) and *Canna indica* (Cannaceae), *Rhinthon cubana* on *Maranta arundinacea*, *Calathea macrosepala*, and *Calathea lutea* (Marantaceae), *Saliana fusta* on *Maranta arundinacea* and *Calathea macrosepala* (Marantaceae), and *Cyneia irma* on *Maranta arundinacea*, *Calathea panamensis*, *Quinta cannae*, and *Thalia geniculata* (Marantaceae). Distributed throughout southern Central America.)

### *Alphomelon* Mason

*Alphomelon* Mason 1981:54. Type species: *Alphomelon disputabilis* (Ashmead), by Mason.

**Diagnosis.**—Genae with white coloration. Face with prominent ridge medially. Forewing without areolet. Propodeum areolated. Tarsal claws pectinate. Hypopygium evenly sclerotized.

**Description.**—**Head:** Brown to black with white coloration on genae. Head broad in frontal view, usually punctate, setose with spreading hairs, always with nitid frons occiput and vertex. Prominent ridge arising between antennal sockets and continuing ventrally to point 0.5 between antennal shelf and clypeus. **Antennae:** Light brown to black, as long as body. Placodes in two rows. **Mouthparts:** Mandible with two teeth: one pointed (dorsal), one rounded (ventral). **Eyes and Ocelli:** Eyes silver (red or dull gray in older specimens) stiffly setose with short hairs. Ocelli clear to translucent red, subequal in size with median ocellus immeasurably (85%) smaller. **Mesosoma:** Propleuron anteriorly punctate and setose with hairs arising from depressions, posteriorly nitid. Pronotal polished band nitid anteriorly and substrigulate posteriorly. Pronotal furrows rugose. Area posterior to pronotal furrows punctate and setose. Epimeron deeply impressed dorsally. Mesoscutum punctate (85%) broader than long. Anterior scutellar furrow represented by line of impressed pits. Lateral scutellar furrows widening apically. Lunules nitid. Axillary projections costate-rugose. Lateral metanotal area areolate-rugose dorsally and nitid ventrally. Propodeum sculptured and areolated. **Legs:** Variably patterned with black, brown, yellow, and white, covered

with short, stiff setae. Tibiae with short spines randomly distributed throughout surface. Tarsal claws pectinate with 1–4 spines. **Wings:** Setose with hairs more dense apically. Forewing without areolet. Hamuli consisting of 3 spines basally and 3 hooks distally. **Metasoma:** Petiole with short bifurcating carina present medially (if no carina then shallow depression present). Medial tergite II trapezoidal to rectangular, nitid to rugulose. Tergite I spiracle surrounded with long thickened setae. Hypopygium evenly sclerotized. **Genitalia:** Ovipositor tapering apically, slightly depressed dorsally basal to tip and slightly expanded at tip. Ventral valve with 2–4 teeth apically. Ovipositor sheaths evenly setose with stiff spreading setae at the desclerotized tips.

**Biology.**—Parasitoids of hesperiine hesperiids.

### *Alphomelon arecaphile* Deans, new species (Fig. 6d)

**Diagnosis.**—Tegulae whitish, hind wing cu-a straight, ovipositor thick ( $0.6\times$  basitarsus width), reared from skippers (*Carystoides basoches* and *Synale cynaxa*) on palms (Arecaceae) (Janzen and Hallwachs 2000).

**Female.**—**Head:** Dark brown to black except white coloring on genae extending from anterior tentorial pits to bottom edge of eye, ventrally to mandible and posteriorly to occiput, not extending onto clypeus. Head round,  $1.15\times$  wider than high, setose with flexible setae, not punctate, nitid occiput, frons and vertex. Face  $2.35\times$  wider than clypeus. Clypeus  $1.33\times$  wider than high. Line between anterior tentorial pit and eye  $0.5\times$  line between eye and

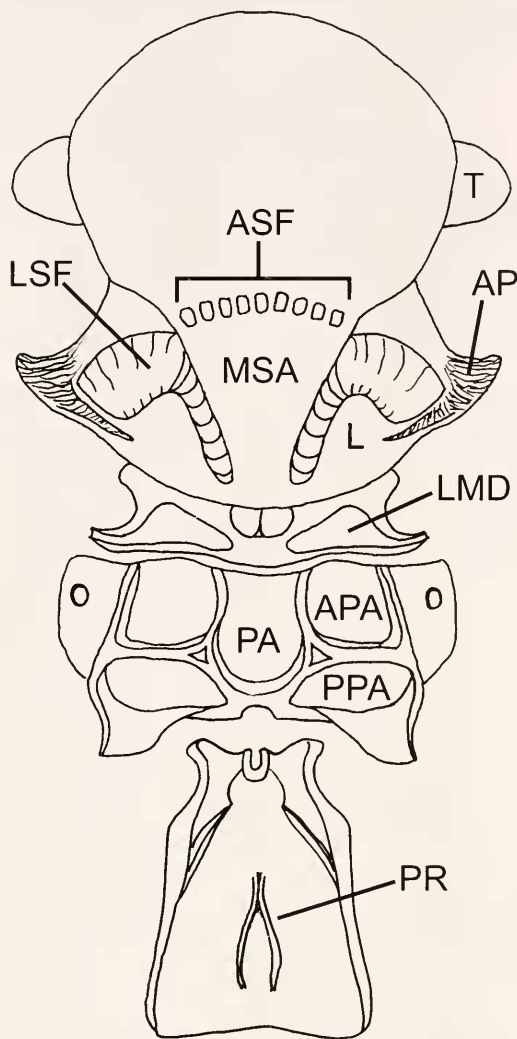


Fig. 1. Morphological terms, *Alphonelcon*. (T) tegula, (ASF) anterior scutellar furrow, (LSF) lateral scutellar furrow, (AP) Axillary projections, (MSA) medial scutellar area, (L) lunule, (LMD) lateral metanotal depression, (APA) anterior propodeal area, (PA) propodeal areola, (PPA) posterior propodeal area, (PA) petiolar ridge.

mandible with malar space slightly convex. *Eyes and Ocelli*: Eyes  $1.7\times$  higher than wide. Ocelli colorless, translucent, subequal in size. Stemmaticum slightly raised and broadly triangular with posterior-ocellar line  $3.6\times$  lateral-ocellar line. Ocular-ocellar line  $1.1\times$  posterior-ocellar line. *Antennae*: Dark brown, as long as body.

*Mouthparts*: Mandibles brown, setose with stiff hairs. Labrum dark brown and broadly cleft (appearing not cleft in some). Maxillary palps whitish-yellow, labial palps brown. *Mesosoma*: Black. Tegulae whitish yellow and translucent, brown at base,  $2.15\times$  wider than long, semicircular. Mesoscutum  $1.1\times$  wider than long, evenly punctate. Medial scutellar area evenly but slightly punctate, elongate and triangular with anterior scutellar furrow  $0.9\times$  length of medial scutellar area. Anterior scutellar furrow sub-linear with 7–8 pits,  $2.2\times$  longer than line between lateral scutellar furrows. Axillary projections with sculpturing arising at apical 0.33 lunule base. Lunules triangular and  $1.85\times$  wider at the base than high. Lateral scutellar furrows costate basally, becoming rugulose apically with apical edge equal to lunule base width. Mesopleuron evenly minutely punctate except nitid areas dorsad and ventrad sternaulus. Mesonotum nearly nitid, except setose raised area (8–10 setae) posterior to posterior scutellar depression. Lateral metanotal depressions nearly rectangular becoming broader apically, with rugulose surface. Posterior scutellar depression small,  $2\times$  wider than long, divided medially with carina. Anterior propodeal areas rugose. Posterior propodeal areas nitid with 1–2 small carinae. Anterior propodeal areas not well separated from posterior propodeal areas. Areola U-shaped, nearly open with only a small carina, minutely rugulose,  $1.8\times$  wider than high. propodeal spiracle hairs difficult to distinguish from other setae. *Forelegs*: Honey-yellow except dark brown coxae and trochanters. Tarsal claws light brown. Arolia dark brown. *Mid-legs*: Honey-yellow except dark brown coxae and trochanters. tarsal claws light brown. Arolia dark brown. *Hind legs*: Coxae dark brown to black, trochanters dark brown, trochantellae honey-yellow, femur honey-yellow except apical 0.2 brown. Tibiae  $5\times$  longer than wide, yellowish-brown except basal 0.15 white and apical 0.1 brown. Tibial

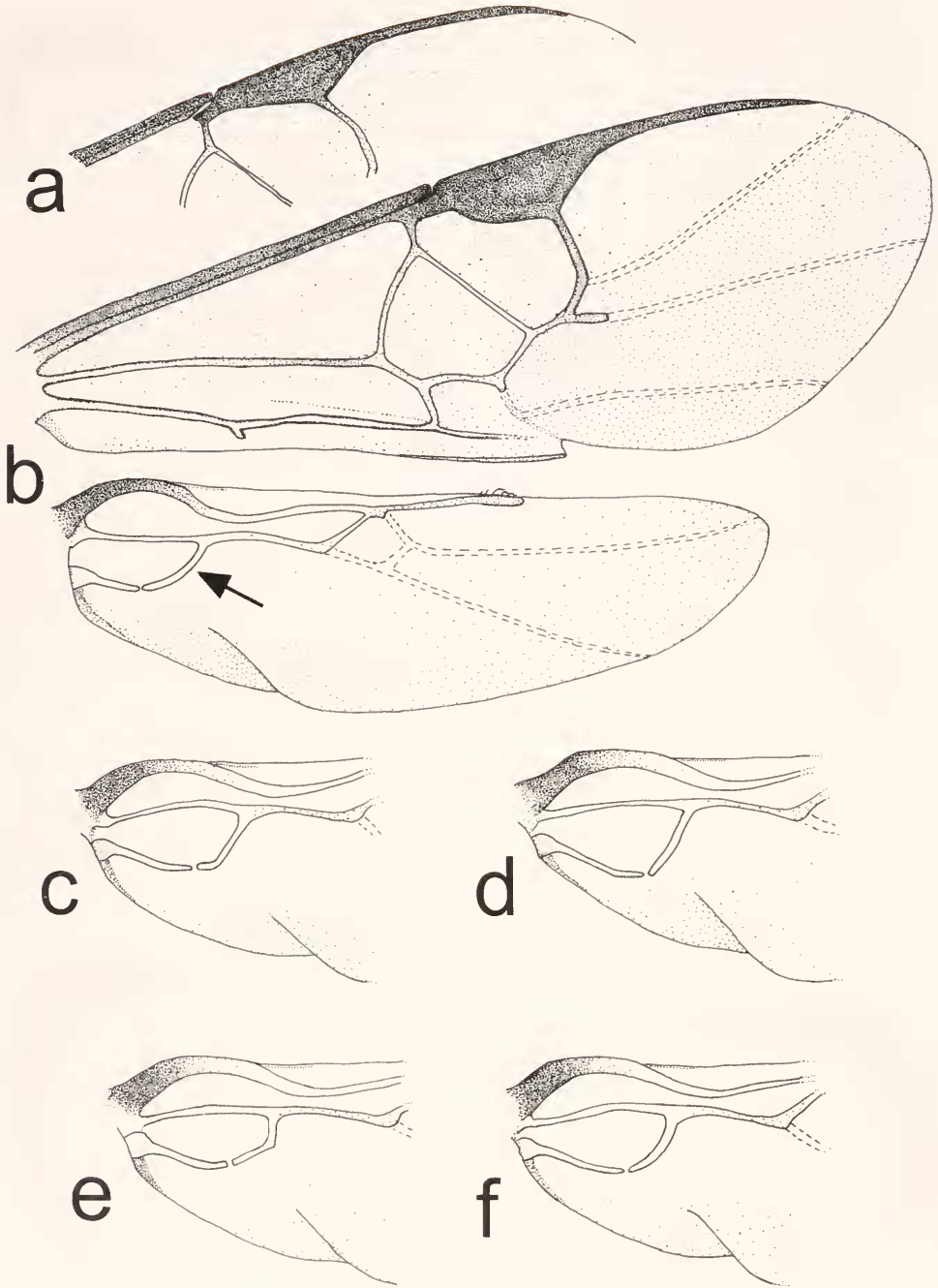


Fig. 2. Wing venation, *Alphonelion*. (a) stigma elongate, triangular (b) stigma not elongate and typical forewing venation with hind wing showing strongly curved cu-a (arrow), (c) cu-a curved posteriorly towards body, (d) cu-a straight, (e) cu-a strongly angled medially towards body, (f) cu-a evenly curved.

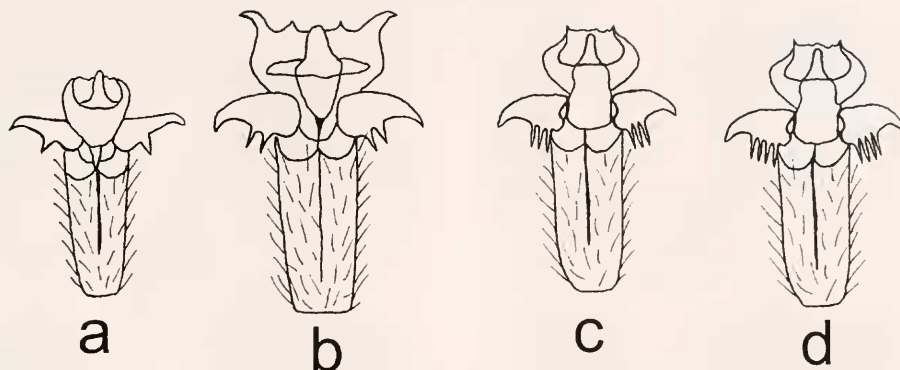


Fig. 3. Tarsal claw variation, *Alphonelton*. (a) Claw with one spine, (b) with two spines, (c) with three spines, (d) with four spines.

spurs white, interior spur  $1.6\times$  longer than exterior spur. Basitarsus  $4.25\times$  longer than wide, yellow evenly fading to brown. Remaining tarsomeres brown. Tarsal claws light brown with 1 spine. Arolia dark brown. *Wings*: Setose with membrane pubescence slightly more dense apically. Stigma elongate. Veins brown dorsally and ventrally. Hind wing cu-a straight with slight bending at midpoint towards body. *Metasoma*: Dark brown to black, lateral tergite I brown. Petiole trapezoidal with posterior edge  $1.3\times$  anterior edge and petiole length  $1.5\times$  posterior edge, rugulose with posterior  $0.25$  sparsely setose. Petiolar ridge represented,  $0.33\times$  as long as petiole length with line between bifurcating ridge arms  $0.25\times$  posterior petiole edge. Medial tergite II rugulose, trapezoidal with medial area expanded slightly anteriorly and posteriorly, anterior edge  $0.8\times$  posterior edge, and length  $0.4\text{--}0.45\times$  anterior edge. Hypopygium evenly setose. *Genitalia*: Ovipositor  $0.6\times$  as thick as hind basitarsus, reddish-orange, with exerted portion  $1.7\times$  longer than hind basitarsus, ventral valve with 4 teeth. Ovipositor sheaths thick, straight with sharply angled tips, tips desclerotized, dark brown interior and exterior.

*Male*.—Legs with more orange and less brown coloration, wing veins lighter brown becoming clear basally.

*Cocoon*.—Tight, smooth white cocoons

linked to other cocoons with fine strands of silk.

*Biology*.—Gregarious parasitoids of hesperiines (*Carystoides basoches* and *Synalcynaxa*) feeding on palms (Arecaceae: *Chamaedorea* spp.). Reared in intermediate elevation rainforest in northwestern Costa Rica (Janzen and Hallwachs 2002) and central Costa Rica.

*Etymology*.—The name “arecaphile” is derived from the host plant family (Arecaceae) and the Greek word for “lover” – phile.

*Holotype*.—COSTA RICA: Area de Conservación Guanacaste: Sector Cacao: Gongora: 560m: 95-SRNP-9593: (1 ♀, USNM).

*Paratypes*.—COSTA RICA: Area de Conservación Guanacaste: Sector San Cristobal: Quebrada: 660m: 98-SRNP-7272: (1 ♀, AEI); COSTA RICA: Area de Conservación Guanacaste: Sector Cacao: Gongora: 560m: 95-SRNP-9593: (1 ♂, USNM, 1 ♀, INHS); COSTA RICA: Area de Conservación Guanacaste: Sector San Cristobal: Sendero Catarata: 720m: 98-SRNP-6805: (1 ♀, ♂, CNC); 98-SRNP-6805 (1 ♂, INHS); COSTA RICA: Birri: reared from hesperiid on “pacaya”: 7-X-1996 A. Gonzales (1 ♀, INHS); COSTA RICA: Area de Conservación Guanacaste: Sector Cacao: Gongora: 560m: 95-SRNP-9593 (1 ♀, INBIO); 97-CALI-030 (1 ♀, INBIO); 96-RIOS-383 (5 ♀, INHS); COSTA RICA: Area de Conservación Guanacaste: Sector Cacao: Estación

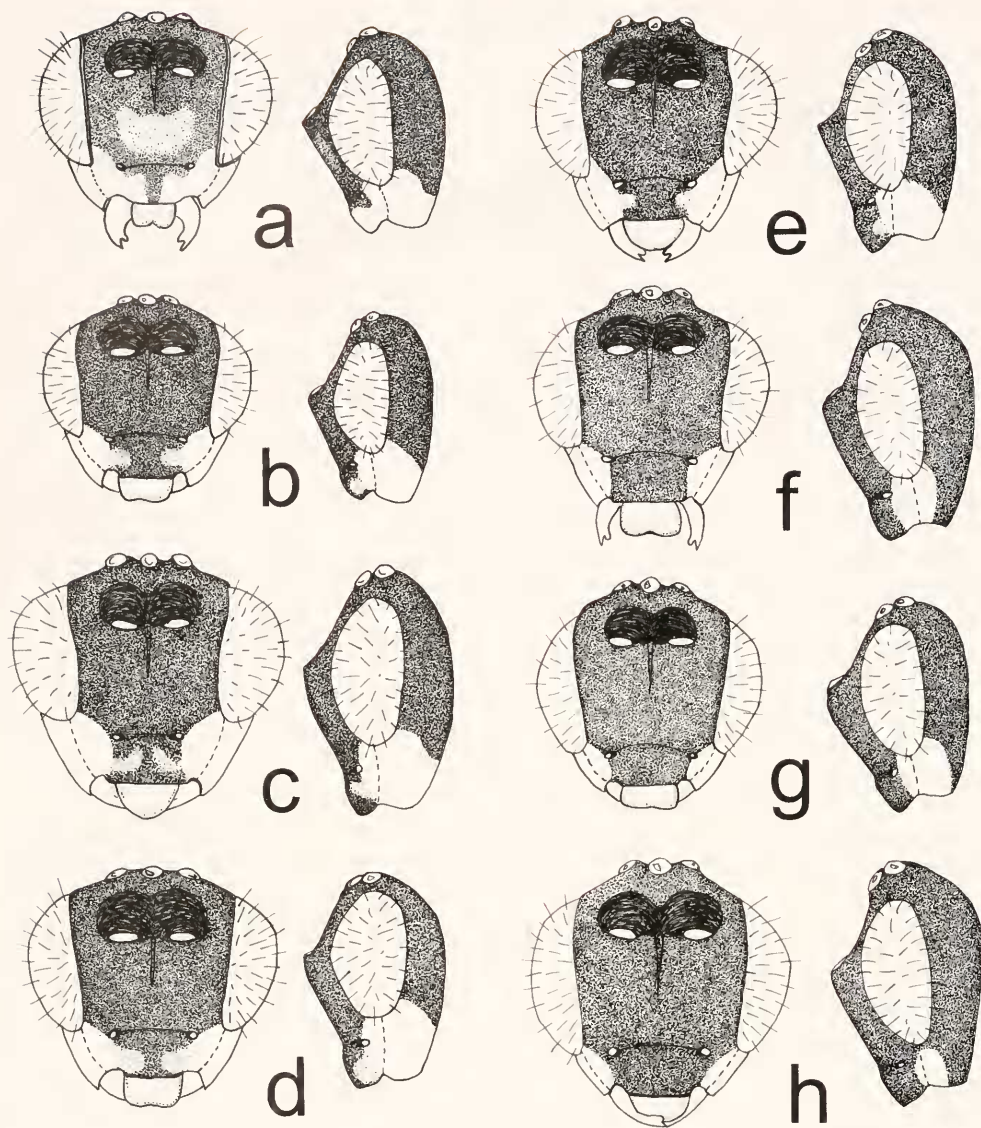


Fig. 4. Head color patterns, *Alphonmelon*. Frontal and sinistral views of *Alphonmelon* heads; (a) *A. bromeliophile* n. sp., (b) *A. brachymacher* n. sp., (c) *A. citroloma* n. sp., (d) *A. talidicida* (Wilkinson), (e) *A. disputabile* (Ashmead), (f) *A. nigriceps* (Ashmead), (g) *A. winnicwertzae* n. sp., (h) *A. paurogenum* n. sp.

Cacao: 1120m: 97-SRNP-967 (1♀, 1♂, INHS); COSTA RICA: Limón: 4 km. NE. Bribri: 50m: malaise trap: [IX–XI]-1989 coll. Paul Hanson (1♀, UWY).

*Other material examined.*—COSTA RICA: Area de Conservación: Sector San Cristobal: Quebrada: Cementario: 660m: 98-SRNP-7055: (1♀, 1♂); 98-SRNP-7272 (1♀, 1♂); Sector San Cristobal: Sendero: Catar-

ata: 720m: (2♀, 2♂ each 98-SRNP-6805, 98-SRNP-6806); Sector Cacao: Gongora: 560m: (2♀, 1♂, 95-SRNP-9593); Sector Cacao: Estación Cacao: 1120m: (1♀, 1♂, 97-SRNP-967); Area de Conservación Guanacaste: Rincón Rainforest: Camino Rio Francia: (1♀, 1♂, 00-SRNP-21106); 97-RIOS-001 (7♀); 97-CALI-030 (1♀); 96-RIOS-383 (8♀); 96-C.MORAGA-246 (3♀,

1♂); Riparian: 29-VIII-1977 (1♀, AEI); S. Rosa National Park: coll. 19-VII-1977 D. Janzen (1♀, AEI); San José: San Pedro: UCR Reserva Ecológica: Leonel Oviedo: 1150m: reared 15-X-1999 Kenji Nishida (6♀, INHS); BRAZIL: Utinga: Belem: coll. XII-1966 S. J. Oliviera (1♀, AEI).

*Alphomelon brachymacher* Deans,  
new species  
(Figs. 4b, 6a)

*Diagnosis*.—Hypopygium expanded posteriorly, ovipositor very short and barely exerted. Mandibles concealed in head behind labrum. Hind wing cu-a vein strongly curved towards body.

*Female*.—*Head*: Dark brown with white coloring on genae barely reaching onto clypeus, extending from anterior tentorial pits ventrally to mandible edge, and posteriorly to occiput. Head  $1.3\times$  wider than high, appearing compressed, evenly punctate except nitid vertex, frons, and occiput. Face  $2.15\times$  wider than clypeus. Clypeus  $2\times$  wider than high. Malar suture  $1.4\times$  longer than line between eye and anterior tentorial pit, malar space slightly convex. *Antennae*: Light brown, slightly shorter than body. *Eyes and Ocelli*: Eyes  $1.65\times$  higher than wide. Ocelli translucent honey-yellow to honey orange, subequal in size. Stemmaticum slightly raised and broadly triangular with posterior-ocellar line  $3.5\times$  longer than lateral-ocellar line and ocular-ocellar line equal to posterior-ocellar line. *Mouthparts*: Mandibles brown, setose with long stiff hairs, usually concealed behind labrum and difficult to see. Labrum brown and slightly cleft medially. Palps yellow, setose. *Mesosoma*: Dark brown. Tegulae translucent yellow, setose,  $2\times$  wider than long. Mesoscutum  $1.25\times$  wider than long, punctate with depressions more dense anteriorly. Medial scutellar area trapezoidal, smooth, with anterior scutellar furrow  $2.25\times$  longer than line between lateral scutellar furrows, and medial scutellar area length equal to anterior scutellar furrow length. Anterior

scutellar furrow slightly curved with 5–6 pits. Lateral scutellar furrows carinate basally becoming rugulose and widening distally with distal edge rounded and  $0.5\times$  as wide as lunule base. Lunules semicircular,  $3\times$  wider at the base than long. Axillary projections with sculpturing arising at distal edge of lunule base. Mesopleuron punctate and setose except nitid dorsad and ventrad the sternaulus. Metanotum nitid except sparsely setose raised area posterior to posterior scutellar depression. Lateral metanotal pits skewed-teardrop shaped with slightly rugulose surface. Posterior scutellar depression  $2\times$  wider than long, barely divided medially. Propodeum laterally areolate-rugose with anterior propodeal areas rugose, posterior propodeal areas and areola nearly nitid. Areola nearly open with only shallow carinae represented, diamond shaped,  $1.6\times$  higher than wide. Spiracular hairs obvious. *Fore-legs*: Uniformly honey-yellow except brown coxae and light brown trochanters. Tarsal claws deep red. Arolia brown. *Mid-legs*: Uniformly honey-yellow to honey-orange except brown coxae and trochanters, and light brown trochantellae. Tarsal claws deep red. Arolia brown. *Hind legs*: Coxae dark brown. Trochanters and trochantellae light brown. Femur honey-yellow to honey-orange except apical  $0.2$  light brown. Tibiae honey-orange except basal  $0.2$  whitish and apical  $0.1$  brown,  $5.2\times$  longer than wide. Basitarsi honey-yellow evenly fading to light brown apically,  $4\times$  longer than wide. Tarsomeres uniformly light or dark brown. Tarsal claws reddish brown, pectinate with 4 spines. Arolia dark brown. *Wings*: Hyaline, setose with hairs more dense apically. Veins brown dorsally, white ventrally. Stigma broad. Hind cu-a strongly curved towards body. *Metasoma*: Petiole dark brown, rectangular,  $4\times$  longer than posterior edge, acutely rugulose, glabrous except sparsely setose posterior  $0.25$ . Petiolar ridge strongly represented ( $75\%$ ) and bifurcating,  $0.5\times$  as long as petiole,  $0.2\times$

as wide as posterior petiole edge. Medial tergite II short, sparsely setose, smooth, trapezoidal with anterior edge  $3\times$  tergite length and posterior edge  $1.2\times$  longer than anterior edge. Medial tergites II–III orange. Lateral tergites I–II light brown. Remaining tergites and sternites dark brown. Hypopygium uniformly setose, elongate posteriorly. *Genitalia*: Ovipositor straight to slightly decurved, orange with exerted portion less than  $0.5\times$  hind basitarsus length and  $0.3\times$  as wide as basitarsus width. Sheaths with brown exterior and white interior, densely setose, desclerotized at tips, and expanded apically.

*Male*.—Unknown.

*Cocoon*.—Unknown.

*Biology*.—Collected in rainforest.

*Etymology*.—The name is derived from the Greek roots “brachy-” meaning short and “-macher” meaning sword. It refers to the very short ovipositor.

*Holotype*.—COLOMBIA: Amazonas: PNN Amacayacu Matamata:  $3^{\circ} 23' N$ ,  $70^{\circ} 06' W$ : malaise trap: [11–13]-XI-2000: coll. A. Parente (1♀, USNM).

*Paratypes*.—PERU: Avispas: [1–15]-X-1962: coll. R. D. Shenefelt (2♀, AEI); COLOMBIA: Amazonas: PNN Amacayacu: Mocagua:  $3^{\circ} 23' 01'' N$ ,  $70^{\circ} 06' 01'' W$ : 300m: malaise trap: [8–15]-V-2000: coll. A. Parente (1♀, HUMB); COLOMBIA: Casanare: Yagauzul Cusiana pozo M (P. B.) Caño: La Arenosa: 600m: malaise trap: 24-IX-1995: coll. F. Fernandez (1♀, INHS); ECUADOR: 3 km. N Tena: [V–VI]-1993: coll. S. Borrer and G. Fisher (1♀, TAMU); COSTA RICA: Heredia: 3 km. S. Puerto Viejo: OTS—La Selva: (100m): [16–30]-IX-1992: coll. P. Hanson (1♀, TAMU); COSTA RICA: Heredia: Est. Biol. La Selva: 50–150m:  $10.26^{\circ} N$ ,  $84.01^{\circ} W$ : coll. VIII-1992 (2♀, UWY); coll. (1–15)-IX-1992 P. Hanson (1♀, UWY).

*Other material examined*.—BRAZIL: Mato Grosso: Sinop: coll. II-1976 O. Roppa (2♀, CNC); coll. X-1974 M. Alvarenga (1♀, CNC); coll. XI-1975 M. Alvarenga (1♀, CNC); Nova Teutonia:  $27^{\circ} 11' S$ ,  $52^{\circ} 23' W$ :

300–500m: coll. 1-IV-1961 F. Plaumann (1♀, CNC); E. Santo: Linhares: coll. IX-1972 M. Alvarenga (1♀, CNC); Para: Jacareacanga: coll. XII-1968 M. Alvarenga (1♀, AEI); ECUADOR: 3km. N Tena: coll. (V–VI)-1993 S. Borrer and G. Fisher (2♀, TAMU); Pich: S. Domingo: 47km. S. R. Palenque: 200m: coll. (18–30)-V-1975 Peck (1♀, CNC); PERU: Avispas: coll. IX-1962 R. D. Shenefelt (2♀, AEI); coll. (1–15)-X-1962 R. D. Shenefelt (1♀, AEI); Madre de Dios Dept.: Avispas: 400m: coll. (12–20)-IX-1962 L. E Peña (1♀, CNC).

*Alphomelon bromeliphile* Deans,  
new species  
(Figs. 4a, 6b)

*Diagnosis*.—Exerted portion of ovipositor short, less than or equal to the length of the hind basitarsus. Most (95%) with pale spot covering central part of face. White coloration of genae extending onto the clypeus leaving only middle third of clypeus brown.

*Female*.—*Head*: Brown with light brown area covering central part of face and white coloring on genae extending from the anterior tentorial pit posteriorly to occiput and anteriorly onto lateral one third of clypeus. Head slightly ( $1.25\times$ ) wider than high, appearing compressed, with malar suture  $1.75\times$  longer than distance from eye to anterior tentorial pit, surface evenly punctate and setose with flexible setae emerging from indentations, except nitid frons, occiput, and vertex. Face  $2.3\times$  wider than clypeus. Clypeus  $2\times$  wider than high. Malar space slightly convex. *Antennae*: Light brown, roughly as long as body. *Eyes and Ocelli*: Eye  $1.7\times$  higher than wide. Ocelli translucent honey yellow with lateral ocelli slightly ( $1.25\times$ ) wider than median ocellus. Stemmaticum slightly raised and broadly triangular with posterior ocellar line  $2.7\times$  lateral ocellar line. Ocular ocellar line equal to posterior ocellar line. *Mouthparts*: Mandibles brown, setose with long stiff, hairs. Labrum light brown to yellow, flattened with slight cleft

medially. Palps light brown to yellow. *Mesosoma*: Dark Brown. Tegulae translucent yellow, slightly punctate, semicircular,  $2\times$  wider than long. Mesoscutum  $1.33\times$  as wide as long, punctate with depressions more dense anteriorly. Medial scutellar area  $0.85\times$  as long as anterior scutellar furrow, trapezoidal with anterior scutellar furrow  $2\times$  longer than line between lateral scutellar furrows, slightly punctate and sparsely setose. Anterior scutellar furrow sublinear with 8 pits,  $2.1\times$  as long as line between lateral scutellar furrows. Lateral scutellar furrows carinate basally becoming rugulose apically, narrowing with apical edge  $0.6\times$  as wide as line between lateral scutellar furrows. Lunules semicircular,  $2.5\times$  wider than long. Axillary projections with sculpturing arising distal to lunule base. Mesopleuron punctate with long setae emerging from depressions except in nitid area dorsad and ventrad sternaulus. Metanotum nitid except for sparsely setose (4–6 setae) raised area behind posterior scutellar depression. Posterior scutellar depression  $2\times$  as wide as long, divided centrally. Lateral metanotal pits ovular, rugose. Propodeum laterally areolate-rugose. Anterior propodeal areas rugose. Surface inside areola and posterior propodeal areas rugulose. Propodeal areola U-shaped to sub-triangular, closed (95%),  $1.2\times$  as long as wide. Spiracular hairs present as stiff setae bent at tips. *Forelegs*: Uniformly honey-yellow except brown coxae. Tarsal claws reddish brown. Arolia dark brown. *Mid-legs*: Uniform honey-yellow except light brown trochanters, trochantellae, brown coxae, white basal 0.2 tibiae, and white tibial spurs. Tarsal claws reddish brown. Arolia dark brown. *Hind legs*: Coxae dark brown. Trochanters dark brown. Trochantellae light brown. Femur honey yellow except brown apical 0.2. Tibiae honey yellow except white basal 0.2 and brown apical 0.2 (rarely uniform honey yellow). Tibial spurs white, interior spur  $1.7\times$  longer than exterior spur. Tibia  $2\times$  as long as basitarsus.

Basitarsus  $4.5\times$  longer than wide, brown except basal 0.33 white. Tarsomeres 2–5 brown. Hind tarsal claw reddish brown, pectinate with 4 spines. Arolia dark brown. *Wings*: Hyaline. Setose with membrane pubescence slightly more dense apically. Forewing veins uniform brown dorsally and whitish ventrally. Stigma not elongate. Hind wing cu-a strongly and evenly curved. *Metasoma*: Petiole dark brown, rugulose, glabrous except sparsely setose posterior 0.33. Petiole rectangular and  $1.62\times$  longer than posterior edge. Medial ridge  $0.5\times$  as long as petiole, bifurcation weakly represented. Lateral tergites I–III yellow to light brown. Remaining tergites brown. Tergite II trapezoidal, nitid with sparse setosity. Anterior edge of tergite II  $2\times$  as long as tergite II length. Posterior edge of tergite II  $1.4\times$  as long anterior edge. Hypopygium glabrous ventrally. *Genitalia*: Ovipositor honey yellow, with exerted portion less than or equal to hind basitarsus length, straight with slight tapering posteriorly, less than  $0.5\times$  as wide as hind basitarsus. Ovipositor sheaths punctate, setose, and brown exteriorly, white interiorly. Ovipositor sheath tips yellow, desclerotized.

*Male*.—As females except legs often more uniformly honey-yellow. Apical .25 of petiole often tapering.

*Cocoon*.—Surrounded by copious amounts of fine white silk.

*Etymology*.—The name id Greek for “bromeliad lover” referring to the habit of parasitizing skipper larvae on bromeliads.

*Biology*.—Gregarious parasitoids of *Neoxeniades scipio* (Hesperiidae: Hesperinae) on *Bromelia pinguin* and *Achmaea magdalenae* (Bromeliaceae). Reared in dry forest and rainforest in the Area de Conservación Guanacaste in northwestern Costa Rica (Janzen and Hallwachs 2002).

*Holotype*.—COSTA RICA: Area de Conservación Guanacaste: Sector Orosi: Rio Tempisqueito Sur: 400m: 96-SRNP-945: (1 ♀, USNM).

*Paratypes*.—COSTA RICA: Area de Con-

servación Guanacaste: Sector Orosi: Rio Tempisque Sur: 400m: 96-SRNP-945: (1♂, USNM); COSTA RICA: Puntarenas: Rd. to Rincon: 10km West of Pan-American Highway: 100m: coll. III-V-1986 Hanson and Gauld (1♀, UWY); COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Area Administrativa: 280m: 95-SRNP-10742: (1♀, CNC); COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Area Administrativa: 280m: 95-SRNP-11201: (1♀, ♂, INBIO); COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Laguna Escondida: 290m: 93-SRNP-8346: (1♀, AEI); COSTA RICA: Area de Conservación Guanacaste: 95-SRNP-10903 (1♀, 1♂ UWY).

*Other material examined.*—MEXICO: Chiapas: Muste: 440m: near Huixtla: Malaise trap: coll. X-1970 Welling (1♀, CNC); COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Laguna Escondida: 290m: (1♀, 1♂ each for 93-SRNP-8345, 93-SRNP-8346, 93-SRNP-8427); Costa Rica: Area de Conservación Guanacaste: Sector Santa Rosa: Area Administrativa: 280m: (1♀, 1♂ each for 95-SRNP-10705, 95-SRNP-10740, 95-SRNP-10742, 95-SRNP-10903, 95-SRNP-11201); Area de Conservación Guanacaste: Sector Orosi: Vado Rio Tempisque: 520m: (1♀, 1♂, 96-SRNP-1009); Area de Conservación Guanacaste: Sector Orosi: Rio Tempisque Sur: 400m: (1♀, 1♂, 96-SRNP-1009); Area de Conservación Guanacaste: Sector Santa Rosa: Area Administrativa: 280m: (1♀, 1♂, 99-SRNP-18549); Area de Conservación Guanacaste: Sector Santa Rosa: Quebrada Costa Rica: 250m: E. Cantillano (1♀, 1♂, 99-SRNP-17863).

*Alphamelon citroloma* Deans,  
new species  
(Figs. 4c, 5a, 6c)

*Diagnosis.*—All lateral metasomal tergites and sternites yellow with medial tergites dark brown. Petiole parallel sided,

rectangular, with ridge strongly represented.

*Female.*—*Head:* Dark brown with white genal patches extending from anterior tentorial pits posteriorly to occiput, dorsally to edge of eye, ventrally to edge of mandible, extending as light brown spots onto lateral 0.33 areas of clypeus. Head slightly elongate, 1.2× wider than high, obscurely punctate. Face 2× wider than clypeus. Clypeus 1.6× wider than high. Malar suture 2.25× longer than line between anterior tentorial pit and eye. Malar space slightly convex. *Eyes and Ocelli:* Eyes 1.6× higher than wide. Ocelli translucent-yellow, subequal in size. Stemmaticum raised slightly, broadly triangular with posterior-ocellar line 3× lateral-ocellar line and ocular-ocellar line 1.2× posterior-ocellar line. *Antennae:* brown to light brown, as long as body. *Mouthparts:* Mandibles brown, setose with fine stiff hairs. Labrum brown to light brown, flattened ventrally. Palps yellow. *Metasoma:* Dark brown. Tegulae semicircular, translucent-yellow, 2× wider than long. Mesoscutum evenly punctate and setose, 1.3× wider than long. Medial scutellar area triangular, obscurely punctate, as long as anterior scutellar furrow. Anterior scutellar furrow straight with 7–8 pits, 2.6× longer than line between lateral scutellar furrows. Lateral scutellar furrow costate basally, becoming rugulose and wider apically with apical edge 0.8× lunule base width. Lunules 0.5× longer than base width, nearly triangular. Axillary projections with sculpturing arising at lateral 0.33 lunule base. Mesopleuron evenly punctate and setose except for nitid area dorsad and ventrad the sternaulus. Mesonotum obscurely scabriculous to nitid except rugulose surface inside lateral metanotal pits and raised setose (~15 setae) area posterior to posterior scutellar depression. Posterior scutellar depression 2.5× wider than long, not completely divided medially. Lateral metanotal pits skewed tear-drop shape. Anterior propodeal areas rugose. Posterior propo-

deal areas obscurely rugulose. Areola open and rugose anteriorly, obscurely rugulose posteriorly, U-shaped,  $1.7\times$  longer than wide. Spiracular setae present in dense clusters anteriorly. *Forelegs*: Honey-yellow except brown to dark brown coxae. Tarsal claws light brown. Arolia brown. *Mid-legs*: Honey-yellow except brown to dark brown coxae. Tarsal claws light brown. Arolia brown. *Hind legs*: Coxae dark brown to black. Trochanters light brown. Trochantellae light brown basally becoming yellow apically. Femurs honey-yellow except apical  $0.25\times$  brown. Tibiae honey-yellow except basal  $0.2\times$  whitish and apical  $0.1\times$  brown,  $4.67\times$  longer than wide. Tibial spurs white, interior spur  $1.75\times$  longer than exterior spur. Basitarsi whitish basally fading evenly to light brown posteriorly,  $4.5\times$  longer than wide. Remaining tarsomeres light brown to brown. Tarsal claws brown with 2 spines. Arolia brown. *Wings*: Membranes hyaline. Veins light brown dorsally, whitish ventrally. Hind wing cu-a just posterior to mid-point curved back towards body. *Metasoma*: Medial tergites brown except yellow posterior edges of medial tergites III–VII. Lateral tergites and sternites yellow. Hypopygium brown. Petiole rectangular,  $1.67\times$  longer than posterior edge, glabrous except posterior  $0.33\times$  sparsely setose. Petiolar ridge prominent,  $0.5\times$  as long as petiole,  $0.25\times$  as wide as posterior edge. Medial tergite II, lacunose-rugulose,  $0.25\times$  as long as anterior edge, raised slightly medially, rectangular with anterior edge  $0.95\times$  posterior edge. Hypopygium evenly sparsely setose. *Genitalia*: Exerted portion of ovipositor  $1.1\times$  longer than hind basitarsus, orange, weakly decurved,  $0.33\times$  as thick as hind basitarsus. Ventral valve with 2 teeth. Sheaths brown externally, whitish internally, evenly setose, desclerotized apically.

*Male*.—Similar in all respects.

*Cocoon*.—Unknown.

*Etymology*.—The name is derived from the Greek roots “citro-” meaning citrus

and “-loma” meaning fringe. The name refers to the yellow posterior edges on the medial tergites.

*Biology*.—All specimens were collected from low to intermediate elevation neotropical rainforest.

*Holotype*.—ARGENTINA: Horco Molle: Tuc.: coll. (15–19)-I-1966 L. A. Strange (1♀, USNM).

*Paratypes*.—ARGENTINA: Horco Molle: Tuc.: coll. (15–19)-I-1966 L. A. Strange (1♀, USNM); ARGENTINA: Horco Molle: Tuc.: coll. [7–13]-III-1966 L. A. Strange (2♀, USNM); COSTA RICA: Puntarenas: R. F. Golfo Dulce: 3km SW Rincon: 10m: coll. II-1992 P. Hanson (1♀, UWY); COSTA RICA: Puntarenas: Golfo Dulce: 3km SW Rincon: 10m: coll. X-1991 P. Hanson (4♀, 2♂, UWY); Puntarenas: San Vito Estac. Biol.: Las Alturas: 1500m: coll. VI-1992 P. Hanson (1♀, UWY); COSTA RICA: Puntarenas: R. F. Golfo Dulce: 24km W Piedras Blancas: 2000m: coll. XII-1992 P. Hanson (1♀, TAMU); ECUADOR: Pichincha: nr. Santo Domingo: Tinalandia: 680m: coll. 7-II-1983 L. Huggert (1♀, CNC).

*Other material examined*.—BOLIVIA: La Paz: Rio Zongo: 1400–1900m: coll. XII-1984 L. Peña (1♀, AEI); BRAZIL: Caruaru: Pernambuco: coll. IV-1972 M. Alverenga (5♀, 3♂, CNC); Rondonia: Faz Rancho Grande: 62km S Ariquemes: coll. (12–22)-XI-1991 E. M. Fisher (2♂, TAMU); Est. Rio de Janiera: Silva Jardim: coll. VIII-1974 F. M. Oliviera (1♀, CNC); Represa: Rio Grande: Guanabara: coll. XII-1967 M. Alverenga (2♀, AEI); ECUADOR: Pichincha: 16km SE Santo Domingo: Tinalandia: 680m: coll. 1975 S. and J. Peck (12♀, 12♂, CNC); Tinalandia: 800m: coll. 2-II-1983 L. Masner and M. Sharkey (8♀, 7♂, CNC); PANAMA: Las Cumbres: coll. 9-XII-1981 H. Wolda (1♀, 1♂, CNC); coll. (3–10)-II-1982 H. Wolda (1♀, 1♂, CNC); PARAGUAY: Carumbé: 1-II-1966 (4♀, 3♀, AEI); TRINIDAD: Curepe: coll. 28-VII-1978 (1♀, 1♂, CNC); Simla: coll. (18–20)-VIII-1969 Howden (1♀, CNC); VENEZUELA: Merida: Merida City: coll. 3-V-1981 L. Masner

(1♂, CNC); Yacambu: 1200m: coll. 13-V-1981 H. Townes (1♀, AEI).

*Alphomelon conformis* (Muesebeck)  
(Fig. 5c)

*Apanteles conformis* Muesebeck 1958:444–445.  
USNM Holotype #63071 examined.

*Diagnosis.*—Tegulae black. petiolar ridge strongly bifurcating with carinae reaching edges of petiole.

*Female.*—*Head:* Black, except white spots on genae extending from anterior tentorial pits to edge of mandible posteriorly to occiput and anteriorly to edge of clypeus. Slightly punctate except nitid frons, vertex, and occiput, setose with very fine hairs. Head round, 1.2× wider than high, malar suture 1.6× longer than line between anterior tentorial pit and eye. Malar space not convex. Face 2× wider than clypeus. Clypeus 2× wider than high. *Antennae:* Brown, as long as body. *Eyes and Ocelli:* Eye 1.8× higher than wide. Ocelli translucent orange. Lateral ocelli 1.2× wider than median ocellus. Stemmaticum slightly raised, broadly triangular with posterior-ocellar line 2.25× lateral-ocellar line, ocular-ocellar line equal to posterior-ocellar line. *Mouthparts:* Mandibles dark brown, setose with short stiff hairs. Labrum orange to light brown, not cleft medially. Maxillary palps yellow. Labial palps brown. *Metasoma:* Tegulae black, opaque, rarely brown (10%), 2.25× wider than long, rounded but skewed posteriorly. Mesoscutum evenly punctate, 1.5× wider than long. Medial scutellar area 0.85× longer than length of anterior scutellar furrow, smooth and setose with long hairs. Anterior scutellar furrows straight with 8 pits, 2.9× longer than line between lateral scutellar furrows. Lateral scutellar furrows basally carinate becoming nitid and expanded apically, apical edge 0.75× as long as lunule base width. Lunules reduced, rounded, 2× wider at the base than long. Axillary projections with sculpturing arising at midpoint of lunule vase.

Mesopleuron evenly punctate anteriorly becoming minutely punctate posteriorly, nitid dorsad and ventrad the sternaulus. Metanotum obscurely rugulose to nitid, setose (~10 setae) on raised area posterior to posterior scutellar depression. Posterior scutellar depression 2× wider than long, not divided medially. Lateral metanotal depressions rugulose, nearly rectangular with rounded edges. Anterior propodeal areas rugose. Areola nearly square to V-shaped, rugulose, closed, 1.25× longer than wide. Posterior propodeal areas minutely rugulose. Spiracular setae present, stiff, bent at tips. *Forelegs:* Uniformly honey-yellow except brown coxae and trochanters, light brown trochantellae. Tarsal claws reddish-brown. Arolia dark brown. *Mid-legs:* Uniformly honey-yellow except brown coxae, trochanters, trochantellae, and apical 0.25 of femur. Tarsal claws reddish-brown. Arolia dark brown. *Hind legs:* Coxae, trochanters dark brown. Trochantellae brown. Femur yellow-orange basally fading evenly to dark brown apically. Tibiae yellow-orange except apical 0.25 dark brown, 4.5× longer than wide. Tibial spurs white, interior spur 1.5× longer than exterior spur. Basitarsi yellow-orange fading evenly to brown apically, 5× longer than wide. Remaining tarsomeres brown. Tarsal claws reddish-orange with 2 spines. Arolia dark brown. *Wings:* Hyaline. Veins light brown dorsally and ventrally. Stigma not elongate. Hind wing cu-a strongly curved towards body with point of curvature anterior to mid-point of vein. *Metasoma:* Terga I–III brown, remaining terga dark brown. Petiole rectangular, 2× longer than the posterior edge, rugulose and glabrous except sparsely setose posterior 0.3. Petiolar ridge strongly represented, widely bifurcating with diverging carinae reaching petiole edge, ridge 0.5× as long as petiole, distance between diverging carinae 0.33× posterior petiole edge. Medial tergite II, nearly nitid, trapezoidal with anterior edge 0.75–.8× as long as posterior edge, 0.33× as long as

anterior edge. Hypopygium evenly setose except nitid medially. *Genitalia*: Ovipositor slightly decurved, exerted portion  $1.5\times$  as long as hind basitarsus,  $0.5\times$  as wide as hind basitarsus width. Sheaths dark brown, evenly setose, desclerotized at tips, white interiorly.

*Male*.—Legs lighter with less brown coloration. Petiolar ridge reduced in some males (25%). Wing veins light yellow. Medial tergite II rarely rugulose (25%).

*Biology*.—Reared as gregarious parasitoid of unidentified hesperiid on *Canna indica* (Cannaceae) in Venezuela and as solitary parasitoid of unidentified hesperiine on *Panicum pilosum* (Poaceae) in Costa Rica. All collection records are from neotropical rainforest.

*Holotype*.—VENEZUELA: El Valle: reared 8-III-1939 C. H. Ballou (1♀). (#63071 USNM).

*Paratypes*.—VENEZUELA: El Valle: reared 8-III-1939 C. H. Ballou (17♀, 1♂, USNM). All are from same rearing record as holotype.

*Other material examined*.—VENEZUELA: Tucucu: Zulia: coll. 26-IV-1981 H. K. Townes (1♀, AEI), Yacambú: 1200m: coll. 7-V-1981 H. K. Townes (1♀, AEI); BRAZIL: Repressa: Rio Grande: Guarabara: coll. X-1967 M. Alvarenga (1♂, AEI); COSTA RICA: reared Cali D.H. Janzen, DHJ voucher #97-CALI-229 (1♂, INBIO).

### *Alphomelon crocostethus* Deans, new species

*Diagnosis*.—Mesonotum orange. Wing membranes strongly infumated. Hind legs more than 50% dark brown.

*Female*.—*Head*: Black except genae with white coloration extending from anterior tentorial pits anteriorly to the lateral edge of clypeus, ventrally to edge of mandible and posterior to line 0.5 way between malar suture and occiput. Head obscurely punctate, appearing round,  $1.2\times$  wider than high. Face  $1.9\times$  wider than clypeus. Clypeus  $2.2\times$  wider than high. Malar suture  $1.6\times$  as long as line between anterior

tentorial pit and eye. Malar space not appearing convex. *Antennae*: black, slightly shorter than body. *Eyes and Ocelli*: Eyes  $1.7\times$  higher than wide. Ocelli transparent yellow, subequal in size. Stemmaticum slightly raised, broadly triangular with posterior-ocellar line  $2.25\times$  lateral-ocellar line and ocular-ocellar line  $1.2\times$  posterior-ocellar line. *Mouthparts*: Mandibles dark brown, setose with stiff hairs. Labrum brown, not cleft. Palps light brown. *Mesosoma*: Brown to black except mesoscutum honey-orange. Tegulae semicircular, setose, transparent orange to brown,  $2\times$  wider than long. Propleuron brown near cervix fading to orange ventrally and posteriorly. Mesoscutum setose, punctate anteriorly, becoming smooth posteriorly,  $1.3\times$  wider than long. Medial scutellar area smooth, setose, triangular,  $1.1\times$  longer than anterior scutellar furrow. Anterior scutellar furrow straight with 6–7 pits,  $2.6\times$  longer than line between lateral scutellar furrows. Lateral scutellar furrows costate basally becoming smooth and broader apically with apical edge  $0.9\times$  lunule base width. Lunules triangular,  $1\times$  as long as wide at base. Axillary projections with sculpturing arising distal to lunule. Mesopleuron obscurely punctate, setose except nitid area dorsad and ventrad the sternaulus. Metanotum nitid except setose raised area posterior to posterior scutellar depression. Posterior scutellar depression  $2.5\times$  wider than long, divided medially. Lateral metanotal depressions skewed tear-drop shaped, setose and rugulose. Propodeum laterally areolate-rugose. Surface inside anterior propodeal areas and areola rugose. Areola nearly closed anteriorly by shallow carina, U-shaped,  $1.67\times$  longer than wide. Posterior propodeal areas rugulose. Propodeal spiracles with conspicuous clusters of setae anteriorly. *Forelegs*: Honey-yellow except brown coxae, trochanters, and trochantellae. Tarsal claws reddish-brown. Arolia light brown. *Mid-legs*: Uniform brown except dark brown coxae, white tibial spurs (50% with

basal 0.7 of tibiae and 0.5 femurs yellow). Tarsal claws brown. Arolia light brown. *Hind legs*: Coxae, trochanters dark brown. Trochantellae brown. Femurs brown (50% with basal 0.7 honey-yellow). Tibiae brown except basal 0.2 whitish,  $5.2\times$  longer than wide. Tibial spurs white, internal spur  $1.75\times$  longer than external spur. Basitarsi uniformly dark brown,  $5.67\times$  longer than wide. Remaining tarsomeres dark brown. Tarsal claws dark brown with 1 spine. Arolia light brown. *Wings*: Membranes infumated. Veins brown dorsally, whitish ventrally. Hind wing cu-a angled posteriorly towards body. *Metasoma*: Brown to dark brown. Petiole costate, glabrous except posterior 0.3 sparsely setose, trapezoidal and  $1.3\times$  as long as posterior edge. Petiolar ridge represented by bifurcating carina,  $0.4\times$  as long as petiole, width between bifurcating arms  $0.25\times$  posterior edge width. Medial tergite II trapezoidal with posterior edge  $1.3\times$  anterior edge,  $0.25\times$  as long as posterior edge. Hypopygium evenly setose. *Genitalia*: Exerted portion of ovipositor  $1-1.3\times$  length of hind basitarsus, reddish-orange, weakly decurved,  $0.5\times$  as thick as hind basitarsus. Sheaths brown externally, whitish internally, straight, evenly setose, desclerotized at tip.

*Male*.—Unknown.

*Cocoon*.—Straight with tufts of thick silk trailing both ends.

*Etymology*.—The name is derived from the Greek roots "croco-" meaning orange and "-stethus" meaning chest. It refers to the orange colored mesoscutum.

*Biology*.—Reared from unidentified hesperiid on sugar cane (Poaceae: *Saccharum officinarum*) in Jamaica. All collection records are from lowland neotropical rainforest.

*Holotype*.—JAMAICA: Moneymusk Estate: coll. VIII-1959 F. D. Bennett (1♀, USNM).

*Paratypes*.—BRAZIL: Represa Rio Grande: Guanabara: coll. VII-1972 F. H. Oliveira (1♀, CNC); COLOMBIA: Choco:

5° 50' N, 76° 20' W: 2050m: coll. 13-IX-1972 J. Helava (1♀, CNC); COLOMBIA: Bolivar: Colegio: coll. 9-III-1965 M. J. West (1♀, AEI); PUERTO RICO: San Juan: coll. 12-III-1934 Anderson and Mills (1♀, USNM).

*Other material examined*.—BOLIVIA: Prov. Sara.: coll. Steinbach (1♀, MCZ); BRAZIL: Guanabara: Represa Rio Grande: coll. V-1967 M. Alvarenga (2♀, AEI); coll. VI-1967 M. Alvarenga (2♀, AEI); coll. X-1967 M. Alvarenga (2♀, AEI); coll. VII-1972 F. Olivara (1♀, AEI); Pocos de Caldas: Minas Gerais: coll. VII-1972 O. Roppa and E. C. Becker (1♀, AEI); Linhares: E. Santo: coll. IX-1972 M. Alvarenga (2♀, AEI).

### *Alphomelon disputabile* (Ashmead)

(Fig. 4e)

*Urogaster disputabilis* Ashmead 1900:284. USNM Holotype #6446 examined.

*Diagnosis*.—Tarsal claws with 1 spine. Wing membranes hyaline. Hind wing cu-a angled posteriorly towards body. White spots on genae extending to but not onto clypeus.

*Female*.—*Head*: Head dark brown to black except white spot on genae extending from anterior tentorial pits anteriorly to edge of clypeus, dorsally to base of eye, ventrally to mandible and posteriorly to occiput. Head obscurely punctate, appearing round in frontal view,  $1.25\times$  wider than high. Face  $2.25\times$  wider than clypeus. Clypeus  $1.55\times$  wider than high. Malar suture  $1.5\times$  longer than lone between anterior tentorial pit and eye. Malar space flush. *Antennae*: Brown, slightly longer than body. *Eyes and Ocelli*: Eye  $1.85\times$  higher than wide. Ocelli translucent-yellow, subequal in size. Stemmaticum slightly raised, broadly triangular with posterior-ocellar line  $3\times$  lateral-ocellar line and ocular-ocellar line  $1.1\times$  posterior-ocellar line. *Mouthparts*: Mandibles black to dark brown, setose with stiff hairs. Labrum dark brown, not cleft medially. Palps hon-

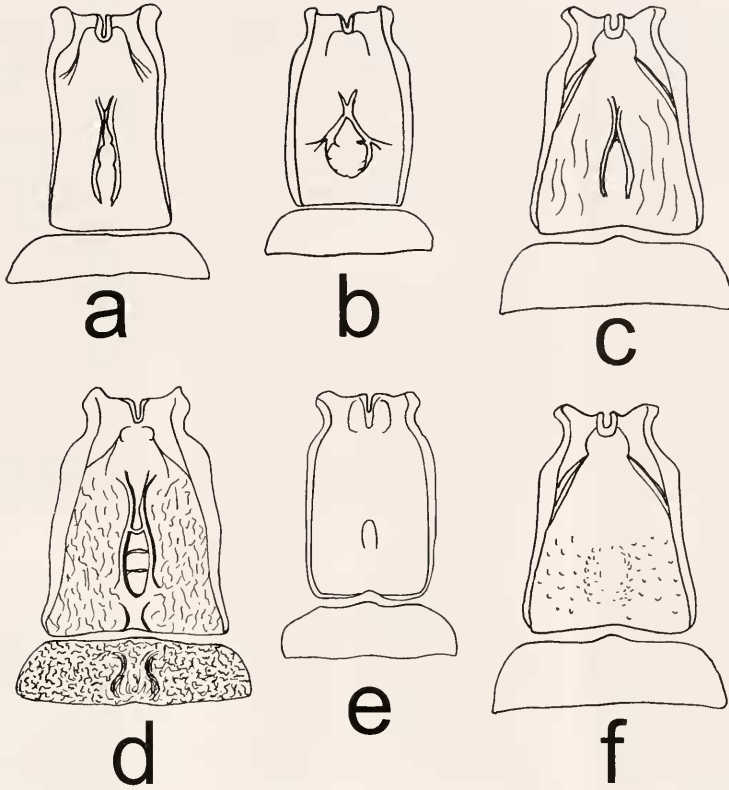


Fig. 5. Petiole and metasomal tergite II variations, *Alphomelon*. (a) *A. citroloma* n. sp., (b) *A. melanoscelis* n. sp., (c) *A. conformis* (Muesebeck), (d) *A. rhyssocercus* n. sp., (e) *A. nanosoma* n. sp., (f) *A. xestopyga* n. sp.

ey-yellow. *Mesosoma*: Black. Tegulae translucent-yellow,  $1.75\times$  wider than long, semi-circular, setose with long setae. Mesoscutum obscurely punctate,  $1.25\times$  wider than long. Medial scutellar area obscurely punctate,  $0.9\text{--}1.0\times$  as long as anterior scutellar furrow. Anterior scutellar furrow straight with 6–8 pits,  $3\times$  longer than line between lateral scutellar furrows. Lateral scutellar furrows costate basally becoming obscurely rugulose and wider apically with apical edge  $0.5\times$  lunule base width. Lunules semicircular,  $1.8\times$  wider at the base than long. Axillary projections with sculpturing arising at distal  $0.33$  lunule base. Mesopleuron punctate, setose except nitid area distal and ventrad the sternaulus. Mesonotum rugulose except smooth, setose ( $\sim 15$  setae) raised area posterior to posterior scutellar depression. Posterior

scutellar depression ovular,  $2.25\times$  wider than long, divided medially. Lateral metanotal depressions skewed tear-drop shape, setose, rugulose. Anterior propodeal areas rugose. Areola rugose and nearly closed with shallow carina anteriorly, rugulose posteriorly, U-shaped,  $1.8\times$  longer than wide. Posterior propodeal areas rugulose. Spiracular hairs present as dense cluster anteriorly. *Forelegs*: Honey-orange except brown coxae. Tarsal claws reddish-brown. Arolia brown. *Mid-legs*: Honey-orange except brown coxae. Tarsal claws reddish-brown. Arolia brown. *Hind legs*: Coxae dark brown. Trochanters brown. Trochantellae orange. Femurs honey-orange except brown apical  $0.2\text{--}0.25$ . Tibiae honey-orange except basal  $0.15$  whitish, apical  $0.15$  brown,  $4.75\times$  longer than wide. Tibial spurs white, interior

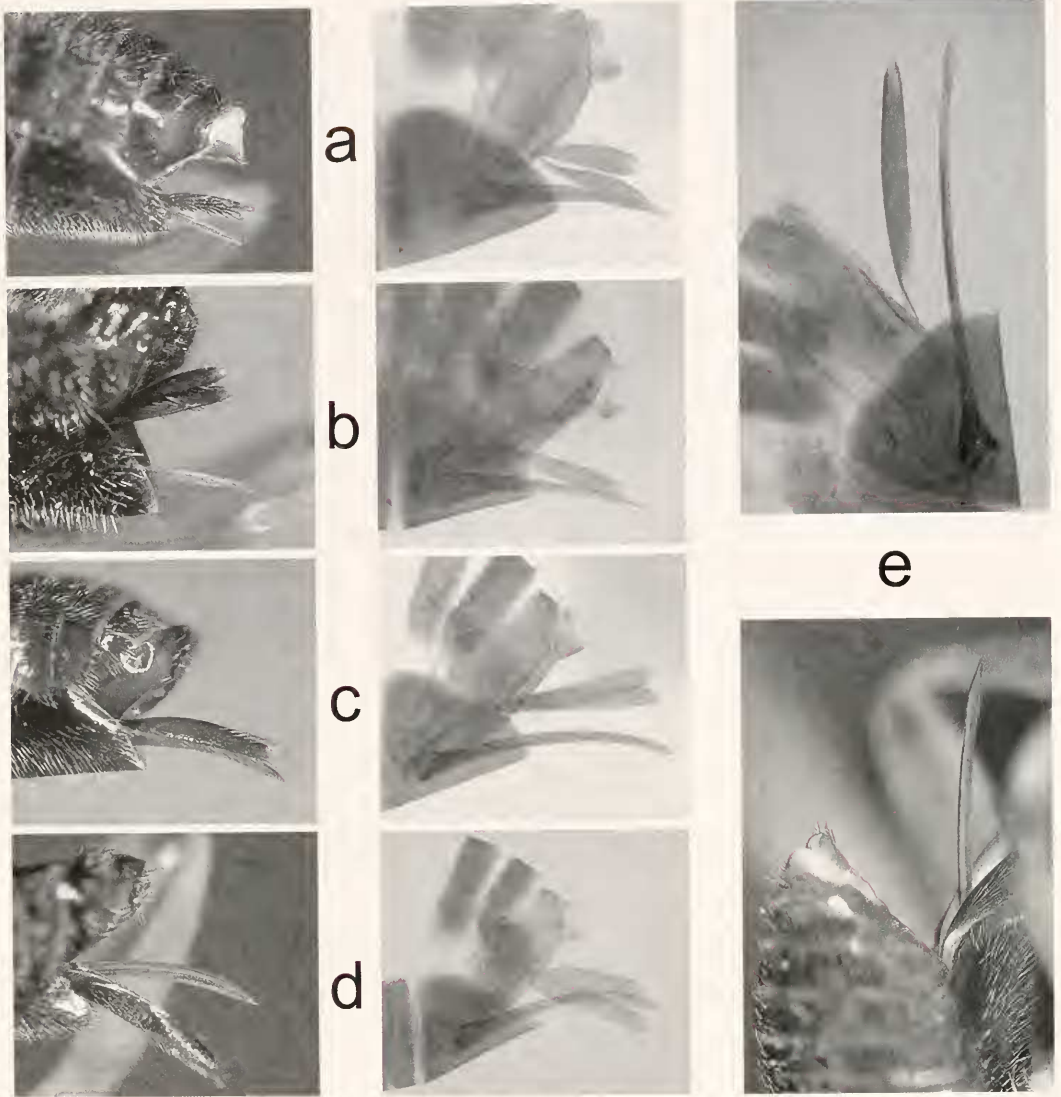


Fig. 6. Ovipositor variation, *Alphoneloma*. Photograph of pinned specimen (left) and mounted genitalia (right); (a) *A. brachynacher* n. sp., (b) *A. bromeliphile* n. sp., (c) *A. citroloma* n. sp., (d) *A. arcaphile* n. sp., (e) *A. talidicida* (pinned genitalia top, mounted genitalia bottom).

spur  $1.6\times$  longer than exterior spur. Basitarsus yellow basally fading evenly to dark brown.  $5.2\times$  longer than wide. Remaining tarsomeres brown. Tarsal claws brown with 1 spine. Arolia brown. *Wings*: Membrane hyaline. Stigma not elongate. Veins brown dorsally, white ventrally. Hind wing cu-a angled posteriorly towards body. *Metasoma*: Dark brown. Petiole trapezoidal, rugulose,  $1.33\times$  as long as

posterior edge, glabrous except sparsely setose posterior  $0.33$ . Petiolar ridge prominent,  $0.5\times$  as long as petiole,  $0.2\times$  as wide as posterior edge. Medial tergite II trapezoidal, smooth to confused-rugulose, slightly raised medially, anterior edge  $0.8\times$  posterior edge,  $0.35\times$  as long as anterior edge. Hypopygium evenly setose. *Genitalia*: Ovipositor orange, slightly decurved, exerted portion  $1.2\times$  longer than

hind basitarsus, 0.5× as thick as hind basitarsus. Ventral valve with 2 teeth. Sheaths straight, evenly setose, brown externally, whitish internally, desclerotized at tips.

*Male*.—As females except stigma clear or white, wing veins light brown to clear, legs more completely orange, body smaller.

*Cocoon*.—Unknown.

*Biology*.—Reared as parasitoid from *Lerema* spp. on *Oryza latifolia* (Poaceae) and *Cymaenes trebius* on grasses (Poaceae) in Costa Rica. Collection localities include both rainforest and dry forest.

*Holotype*.—GRENADA: Mount Gay Estate: Leeward side: coll. H. H. Smith (1♂, #6446 USNM).

*Other material examined*.—ARGENTINA: La Plata: coll. 30-I-1966 H. and M. Townes (1♀, AEI); coll. 11-XII-1965 H. and M. Townes (1♀, AEI); coll. 24-I-1966 H. and M. Townes (1♀, AEI); La Plata: Fac. Agronomia: coll. (X–XI)-1968 C. Porter (1♂, UWY); BELIZE (labeled BRITISH HONDURAS): Middlesex: 125m: coll. 20-III-1965 E. C. Welling (1♂, CNC); coll. 20-IV-1965 E. C. Welling (1♀, 1♂, CNC); coll. 6-X-1965 E. C. Welling (2♂, CNC); coll. 8-X-1965 E. C. Welling (1♀, CNC); BELIZE (1♀, 4♂, USNM); C. A.: Toledo Dist.: Blue Creek: 89° 3' W 16° 12' N: coll. 25-I-1982 A. T. Finnamore (1♂, CNC); BOLIVIA: Chulumani: Yungas: 1700m: coll. (19–20)-XII-1955 L. E. Pena (1♀, CNC); BRAZIL: Guanabara: Represa: Rio Grande: coll. VI-1967 M. Alvarenga (3♀, AEI); coll. IV-1966 M. Alvarenga (1♀, AEI) Utinga: Belem: coll. XII-1966 S. J. Oliveira (1♀, AEI); Teresopolis: coll. 12-III-1966 H. and M. Townes (2♀, AEI); Nova Teutonia: 27° 11' S 52° 23' W: coll. 12-IV-1966 F. Plaumann (1♀, CNC); coll. II-1965 F. Plaumann (1♀, CNC); coll. XII-1968 F. Plaumann (1♀, CNC); Sinop: Mato Grosso: coll. X-1974 M. Alvarenga (1♀, CNC); Para: coll. Baker (3♂, USNM); COSTA RICA: Escazu: coll. 26-V-1987 H. and M. Townes (2♂, AEI); Heredia: 3km S Puerto Viejo: OTS-La Selva: 100m: coll. (16–30)-IX-1992 P. Hanson

(5♀, 6♂, UWY); coll. X-1992 P. Hanson (4♀, 4♂, UWY); Est. Biol. La Selva: 50–150m: 10.26N, 84.01W: coll. VIII-1992 (9♀, 9♂, UWY); CUBA: Havana: coll. Baker (5♂, USNM); Camaguay: coll. at light 1957 (1♂, USNM); DOMINICA: Clark Hall: coll. (11–20)-I-1965 W. W. Wirth (2♂, USNM); coll. (21–31)-I-1965 W. W. Wirth (2♂, USNM); ECUADOR: Tinalandia: 800m: coll. 2-II-1983 L. Masner and M. Sharkey (4♀, 1♂, CNC); GUATEMALA: Yepocapa: Chimaltenango: coll. 11-II-1948 H. Dalmat (1♂, USNM); Escuintla: coll. 20-VIII-1975 N. L. H. Krauss (2♂, USNM); MEXICO: Jalapa: coll. Crawford (1♀, 3♂, USNM); Tabasco: 20km W Cardenas: coll. 14-IX-1981 D. Letourneau (1♀, TAMU); Yucatan: Merida: Xmatkuil: coll. (25–28)-V-1996 Wharton and Leon (1♀, TAMU); Merida: coll. XI-1961 N. L. H. Krauss (1♀, USNM); Ver.: Sontecomapan: coll. 20-VI-1969 W. R. M. Mason (1♂, CNC); NICA-RAGUA: Puerto Cabezas: coll. VII-1971 J. Maldonado (1♀, USNM); PANAMA: Margarita: Canal Zone: coll. VI-1960 S. Braeland (1♀, AEI); Las Cumbres: coll. (20-I)–(2-II)-1982 H. Wolda (1♀, 2♂, CNC); (26–30)-XI-1981 (5♂, CNC); PARAGUAY: Colonia Pirareta: coll. (23–24)-XII-1971 L. E. Pena (1♀, CNC); ST. VINCENT: reared 19-II-1983 (3♂, USNM); TRINIDAD: CIBC: reared 5-III-1983 (2♂, USNM); Curepe: coll. 10-III-1978 (2♀, CNC); coll. 28-VII-1978 (4♂, CNC); Arancuez Est.: coll. 19-II-1961 N. Gopaul (1♀, CNC); USA: Texas: Hidalgo Co.: McAllen: reared 5-X-1979 R. O. and C. A. Kendall (1♂, USNM); reared 4-XI-1979 R. O. and C. A. Kendall (1♀, USNM); reared 16-X-1979 R. O. and C. A. Kendall (1♀, USNM); McAllen: Valley Botanical Garden: coll. (27-VII)–(8-IX)-1973 C. C. Porter (7♀, 3♂, USNM); VENEZUELA: Puerto Cabello: coll. (9–16)-II-1940 P. Anduze (1♀, USNM); San Esteban Valley: Las Quiguas: (1–8)-I-1940 P. Anduze (1♀, USNM); Zulua: El Tucuco: Sierra de Perija: black light: coll. (28–29)-I-1978 J. B. Hepner (1♂, USNM).

*Alphomelon melanoscelis* Deans,  
new species  
(Fig. 5b)

*Diagnosis*.—Body large (~5mm), robust, with black legs and elongate face.

*Female*.—*Head*: Black except genae with white coloration extending from anterior tentorial pits posteriorly to the occiput, and from base of eye to base of mandible. Surface evenly punctate and setose with flexible setae emerging from impressions, except nitid frons, occiput, and vertex. Head slightly wider ( $1.1\times$ ) than long appearing slightly elongate with malar suture  $1.9\times$  the distance between anterior tentorial pit and eye. Malar space flat, not convex. Face  $2\times$  as wide as clypeus. Clypeus  $1.6\times$  wider than high. *Antennae*: Dark brown to black, as long as body. *Eyes and Ocelli*: Eye  $1.65\times$  higher than wide. Ocelli translucent yellow, sub-equal in size. Stemmaticum broadly triangular with posterior-ocellar line  $2\times$  lateral-ocellar line. Ocular ocellar line  $1.5\times$  larger than posterior-ocellar line. *Mouthparts*: Mandibles reddish brown to dark brown, setose with stiff hairs. Labrum, dark brown, flattened, semicircular. Palps stiffly setose, yellow to light brown. *Mesosoma*: Black. Tegulae opaquely yellow, slightly punctate, semicircular,  $2\times$  wider than long. Mesoscutum  $1.33\times$  wider than long, punctate with depressions deeper and more dense anteriorly. Medial scutellar area triangular, as long as anterior scutellar furrow, and punctate with long setae emerging from depressions. Anterior scutellar furrow sub-straight with 7–8 pits,  $3.1\times$  longer than line between lateral scutellar furrows. Lateral scutellar furrows carinate basally, becoming rugose and wider apically with apical edge  $0.6\times$  wider than lunule base. Axillary projections rugose with sculpture arising near middle of lunule base. Lunules triangular, nitid,  $2.33\times$  wider at base than long. Mesopleuron punctate and setose except dorsal and ventral areas around sternaulus. Metano-

tum nitid except setose, punctate raised area posterior to posterior scutellar depression. Posterior scutellar depression  $1.67\times$  wider than long, not fully divided in center. Lateral metanotal depressions rugose, rectangular with rounded edges. Lateral metanotal area areolate-rugose dorsally and nitid ventrally. Propodeum strongly rugose, setose except rugulose/glabrous posterior propodeal areas. Surface inside areola obscurely rugose. Anterior propodeal areas rugose. Areola hexagonal and complete, as long as wide. Pits where longitudinal carinae of areola meet transverse carinae. Propodeal spiracular setae difficult to distinguish from other propodeal setae. *Forelegs*: Coxae black, trochanters and trochantellae dark brown. Femurs, tibiae, tarsi, honey-orange, punctate, setose. Tarsal claws reddish brown. Arolia black. *Mid-legs*: Coxae black, trochanters and trochantellae dark brown. Femurs brown. Tibiae and tarsomeres light brown, densely setose with short, stiff hairs. Basal 0.2 of tibia and basal 0.3 of basitarsus whitish. Tarsal claws pectinate, reddish brown. Arolia black. *Hind legs*: Coxae, trochanters, trochantellae, and femurs black. Tibiae with basal 0.25 whitish fading to dark brown,  $5.6\times$  longer than wide. Tibial spurs white, interior spine  $1.75\times$  as long as exterior spine. Basal 0.2 basitarsi whitish becoming dark brown distally, setose with short, stiff hairs. Basitarsi  $4.5\times$  as long as wide. Tarsomeres dark brown, setose with short, stiff hairs. Tarsal claws reddish-brown, pectinate with 4 spines. Arolia black. *Wings*: Membranes hyaline, setose, becoming more dense apically. Veins uniformly dark brown. Stigma not elongate. Hind wing cu-a slightly angled posterior to middle. *Metasoma*: Petiole black, slightly rugulose-lacunose, glabrous except posterior  $0.33$  with sparse setosity, rectangular with posterior edge  $0.75\times$  as long as total petiole length. Petiolar ridge bifurcating with arms connecting posteriorly,  $0.4\times$  as long as petiole,  $.25\times$  as wide between bifurcat-

ing carinae as posterior petiole edge. Central area within ridge arms depressed to form ovular area. Area surrounding tergite I spiracle densely setose with stiff setae. Lateral tergite I light brown, remaining tergites dark brown to black. Tergite II slightly trapezoidal to nearly rectangular with posterior edge  $1.2\times$  anterior edge and length  $0.3\times$  length of anterior edge. Tergite II rugulose with slightly raised medial area. Hypopygium evenly setose. *Genitalia*: Ovipositor weakly decurved, reddish-orange, tapering slightly posteriorly, exerted portion as long as hind basitarsus,  $0.5\times$  as thick as hind basitarsus width. Ovipositor sheaths black, punctate, and evenly setose, with whitish interior. Ovipositor sheath tips desclerotized.

*Male*.—Unknown.

*Cocoon*.—Unknown.

*Etymology*.—The name is derived from the Greek roots "melano-" meaning black and "-scelis" meaning legs. It refers to the darkened leg coloration.

*Biology*.—Reared as parasitoid of unidentified hesperiines on grasses (Poaceae) and sedges (Cyperaceae) in Costa Rica. The collection localities include both rainforest and dry forest sites.

*Holotype*.—COSTA RICA: Heredia: Est. Biol. La Selva: 10.26N, 84.01W: 50–150m: huertos Malaise trap set by G. Wright: coll. (II–IV)-1993 P. Hanson (1♀, UWY).

*Paratypes*.—BRAZIL: Mato Grosso: Sinop: malaise trap: coll. X-1974 M. Alvarenga (1♀, CNC); BRAZIL: Mato Grosso: Sinop: 12° 31' S, 55° 37' W: coll. X-1976 M. Alvarenga (1♀, AEI); BRAZIL: Alagoas: Murici: coll. V-1984 F. M. Oliveira (1♀, AEI); COSTA RICA: Puntarenas: Golfo Dulce: 24km W Piedras Blancas: 200m: coll. XII-1991 P. Hanson (1♀, UWY); COSTA RICA: D. H. Janzen rearing DHJ voucher #97-RIOS-193 (1♀, INBIO); COSTA RICA: Heredia: 3km S. Puerto Viejo: OTS: La Selva: 100m: coll. X-1992 P. Hanson (3, UWY); Puntarenas: San Vito: Estac. Biol. Las Alturas: 1500m: coll. V-1992 P. Hanson (1, UWY); Puntarenas: Golfo Dul-

ce: 24km W Piedras Blancas: 200m: coll. XII-1991 P. Hanson (1, UWY); Puntarenas: Golfo Dulce: 3km SW Rincon: 10m: coll. X–XII-1990 (1, UWY); coll. X-1991 P. Hanson (1, UWY); coll. XII-1991 P. Hanson (1, UWY); MEXICO: Tabasco: 20km W Cardenas: coll. 31-VIII-1981 D. Latourneau (1♀, TAMU); VENEZUELA: Merida: Merida City: coll. 3-V-1981 L. Masner (1, INHS).

*Other material examined*.—All ♀: MEXICO: Tabasco: 20km W Cardenas: coll. 31-VIII-1981 D. Latourneau (2, TAMU); COSTA RICA: (1 each 97-RIOS-193, 97-RIOS-295, 97-CALI-231, 96-CMORAGA-407); BRAZIL: Mato Grosso: Sinop: coll. XI-1975 M. Alvarenga (2, CNC); X-1974 (1, CNC); BELIZE: Middlesex: 125m: coll. 12-VI-1965 E. C. Welling (1, CNC); 25-IV-1965 (2, CNC).

*Alphomelon nanosoma* Deans,  
new species  
(Fig. 5e)

*Diagnosis*.—Body small (<3mm). Petiole smooth with petiolar ridge represented only as small depression.

*Female*.—*Head*: Brown except white spot on genae extending ventrally to mandible, dorsally to edge of eye, anteriorly to clypeus edge, and posteriorly to occiput. Head appearing round,  $1.2\times$  wider than high, smooth, finely setose. Face  $2.25\times$  wider than clypeus. Clypeus  $1.6\times$  wider than high. Malar suture  $1.4\times$  line between anterior tentorial pit and eye. Malar space slightly convex. *Eyes and Ocelli*: Eyes  $1.5\times$  higher than wide. Ocelli subequal in size, translucent light yellow. Stemmaticum slightly raised, broadly triangular with posterior-ocellar line  $4\times$  lateral-ocellar line and ocular-ocellar line  $1.2\times$  posterior-ocellar line. *Antennae*: Brown to light brown, as long as body. *Mouthparts*: Mandibles brown, setose with short stiff setae. Labrum light brown to brown, flattened ventrally. Palps light brown to yellow. *Metasoma*: Brown. Tegulae translucent light brown,  $1.67\times$  wider than long, semi-

circular. Mesoscutum punctate anteriorly and laterally becoming slightly punctate medially,  $1.5\times$  wider than long. Medial scutellar area triangular,  $0.85\times$  as long as anterior scutellar furrow. Anterior scutellar furrow  $2.25\times$  as long as line between lateral scutellar furrows, slightly curved towards anterior with 8 pits. Lateral scutellar furrows costate basally, becoming rugulose and broader apically with apical edge  $0.7\times$  lunule base width. Lunules triangular,  $2\times$  wider at base than long. Axillary projections with sculpturing arising at distal 0.25 lunule base. Mesopleuron obscurely punctate, evenly setose except nitid area dorsad and ventrad the sternaulus. Mesonotum minutely rugulose except rugulose lateral metanotal depressions and smooth, setose ( $\sim 10$  setae) raised area posterior to posterior scutellar depression. Posterior scutellar depression round,  $2.33\times$  wider than long, nearly fully divided medially. Lateral metanotal depressions tear-drop shaped. Anterior propodeal areas rugose. Areola closed and rugose anteriorly, obscurely rugulose posteriorly, hexagonal,  $1.6\times$  longer than wide. Posterior propodeal areas rugulose. Spiracle hairs present in tufts anteriorly. *Forelegs*: Honey-yellow except light brown coxae and trochanters. Tarsal claws and arolia brown. *Mid-legs*: Honey-yellow except light brown coxae, trochanters, and trochantellae. Tarsal claws and arolia brown. *Hind legs*: Coxae dark brown. Trochanters brown. Trochantellae brown basally fading to yellow apically. Femurs honey-yellow except posterior 0.25 brown. Tibiae brownish-yellow except basal 0.2 whitish and apical 0.15 brown,  $4.6\times$  longer than wide. Tibial spurs white, interior spur  $1.6\times$  longer than exterior spur. Basitarsi yellowish-brown,  $5.15\times$  longer than wide. Remaining tarsomeres yellowish-brown. Tarsal claws brown with 2 spines. Arolia brown. *Wings*: Membranes hyaline. Stigma not elongate. Fore-wing veins brownish dorsally, whitish ventrally. Hind wing veins whitish. Hind wing cu-a

evenly curved towards body. *Metasoma*: Brown except light brown lateral tergite I and light brown medial tergite II in some (30%). Petiole trapezoidal, nearly nitid, glabrous except posterior 0.2 sparsely setose,  $1.4\times$  longer than posterior edge. Petiole edge represented only as slight depression (may be difficult to observe) or slight bump. Medial tergite II trapezoidal, smooth, sparsely setose, with anterior edge  $0.75\times$  posterior edge,  $0.33\times$  as long as anterior edge. Hypopygium evenly and densely setose. *Genitalia*: Ovipositor yellow,  $1.4\times$  longer than hind basitarsus,  $0.4\times$  as thick as hind basitarsus, decurved apically. Sheaths straight, evenly setose, brown exteriorly, white interiorly.

*Male*.—As females but smaller with lighter colored wing veins.

*Cocoon*.—Unknown.

*Biology*.—Reared as gregarious parasitoid of *Cobalopsis* sp. on *Oryza latifolia* (Poaceae) in Costa Rica. Collection localities include both dry forest and rainforest sites.

*Etymology*.—The name is derived from the Greek roots "nano-" meaning dwarf and "-soma" meaning body. It refers to the small size of this species.

*Holotype*.—COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Bosque San Emilio: 300m: 93-SRNP-7564: (1♀, USNM).

*Paratypes*.—BRAZIL: Sinop: M. Grosso: 12° 31' S, 55° 37' W: coll. II-1976 M. Alvaranga (1♀, AEI) COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Bosque San Emilio: 300m: 93-SRNP-7564: (1♂, USNM, 1♀, INHS); COSTA RICA: Santa Rosa Nat'l. Park: 300m: malaise trap: site #SE: 5.0: coll. [18-XI]-[8-XI]-1986 I. D. Gauld and D. H. Janzen (1♀, INBIO); COSTA RICA: Cartago: Turrialba: grounds of IICA: malaise trap: [3-5]-VI-1976 M. Wasbauer (1♀, INHS); COSTA RICA: Guanacaste: Santa Rosa National Park: regenerating woodland (<10 years old): 300m: ex. Townes (style) malaise,

H3-O (direct sun daily, wet): [6-27]-IX-1986 I.D. Gauld (1 ♀, UWY).

*Other material examined.*—COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Bosque San Emilio: 300m: 93-SRNP-7564: (2 ♀, 1 ♂); Puntarenas: Gofito: coll. 13-VI-1976 M. Washbauer (1 ♂, INHS); ECUADOR: Pich.: S. Domingo: 47km S R. Palenque: 200m: coll. (18-30)-V-1975 (6 ♀, CNC); TRINIDAD: Curepe: coll. 11-VII-1978 (5 ♀, CNC); PANAMA: Las Cumbres: coll. (3-10)-II-1982 H. Walda (3 ♀, CNC); MEXICO: Chiapas: nr. Huixtla: 440m: coll. X-1970 Welling (2 ♂, CNC); BRAZIL: Mato Grosso: Caceres: coll. X-1984 M. Alvarenga (2 ♀, AEI).

*Alphomelon nigriceps* (Ashmead)  
(Fig. 4f)

*Urogaster nigriceps* Ashmead 1900: 284. USNM  
Holotype #6443 examined.

*Diagnosis.*—Body honey orange except black head, dark brown ovipositor sheaths, distal 0.25 hind tibiae, tarsomeres, brown mid-tarsomeres. Wings infumated.

*Female.*—*Head:* Black, punctate except nitid frons, vertex, and occiput. Genae with whitish area from anterior tentorial pit extending posteriorly, ending 0.5 way between malar suture and occiput, extending dorsally to edge of eye and ventrally to base of mandible. Head  $1.1\times$  wider than long. Face  $2\times$  as wide as clypeus. Malar suture  $1.85\times$  line from eye to anterior tentorial pit. Malar space not convex. *Antennae:* Black, as long as body. *Eyes and Ocelli:* Eye  $1.75\times$  longer than wide. Ocelli translucent red (older specimens) to yellow or almost clear. Median ocellus subequal in size to lateral ocelli. Stemmaticum slightly raised and broadly triangular with posterior-ocellar line  $2.5\times$  lateral-ocellar line. Ocular-ocellar line equal to posterior-ocellar line. *Mouthparts:* Mandibles brown to reddish brown, setose with stiff hairs. Labrum light brown (Texas) to dark brown or black, flattened to slightly cleft ventrally. Palps honey-yellow. *Mesosoma:*

Honey-yellow. Tegulae  $1.75\times$  wider than long, honey-yellow, semicircular, and setose. Propleuron honey-yellow with darker coloration anteriorly near cervix or nearly entirely black in some continental specimens (Brazil). Mesoscutum punctate with depressions deeper and more dense anteriorly,  $1.33\times$  wider than long. Medial scutellar area elongate triangular,  $1.2\times$  longer than anterior scutellar furrow, with anterior scutellar furrow  $3\times$  as long as line between lateral scutellar furrows. Anterior scutellar furrow sublinear with 6-7 pits. Lateral scutellar furrows costate basally becoming obscurely rugulose and broader apically with apical edge  $0.75\times$  as wide as lunule base. Lunules  $1.5\times$  wider at the base than high, triangular to subtriangular. Anterior axillary projections rugulose with sculpture arising apically to lunules. Mesopleuron punctate and setose, except nitid area dorsad and ventrad sternaulus. Metanotum glabrous, nitid except for setose ( $\sim 10$  setae) raised area posterior to posterior scutellar depression. Posterior scutellar depression  $2\times$  wider than long, flattened posteriorly, not divided medially. Lateral metanotal depressions rugulose and setose. Propodeum laterally areolate-rugose. Surface inside anterior propodeal areas, areola, and posterior propodeal areas glabrous and rugulose. Propodeal areola diamond shaped to hexagonal, closed. Propodeal carinae setose. Area anterior to propodeal spiracle densely setose with long, curved setae. *Forelegs:* Coxae, trochanters, trochantellae honey-yellow, some continental (Belize, Brazil, Peru, Argentina) with dark brown to black coxae, trochanters, and trochantellae. Femurs honey-yellow. Tibiae honey yellow with distal 0.2 in some specimens dark brown. Antennal cleaners and tarsomeres honey yellow to light brown. Tarsal claws reddish brown. Arolia black. *Mid-legs:* Honey-yellow. Same as fore-legs except coxae, trochanters, trochantellae never darkly colored. *Hind legs:* Coxae, trochanters, trochantellae honey yellow (trochanters, tro-

chantellae brown from Argentina). Femurs honey-yellow, turning brownish distally. Tibiae honey yellow with distal 0.25 dark brown,  $4.4\times$  longer than wide. Basitarsus  $5\times$  longer than wide, dark brown with basal 0.5 lighter. Remaining tarsomeres dark brown. Tarsal claws reddish brown with one spine. Arolia black. *Wings*: Membranes smoky, setose with setosity becoming slightly more dense apically. Veins uniformly dark brown dorsally, whitish colored ventrally. Hind wing cu-a angled posteriorly towards body. *Metasoma*: Petiole honey-yellow, rugulose-lacunose, glabrous except for sparsely setose posterior  $0.3\times$ , trapezoidal with posterior edge  $0.85\text{--}1\times$  petiole length. Petiolar ridge strongly raised,  $0.5\times$  as long as petiole length,  $0.25\times$  as wide as posterior petiole edge. Tergite I spiracle sparsely surrounded by long setae. All other tergites honey-yellow (may be light reddish brown in some continental specimens (e.g., Florida, South Carolina, USA). Tergite II very slightly rugulose, broadly trapezoidal with anterior edge  $0.9\times$  posterior edge and TII length  $0.3\times$  anterior edge length. Hypopygium evenly setose, honey yellow. *Genitalia*: Ovipositor slightly longer ( $1.1\text{--}1.6\times$ ) than hind basitarsus, weakly decurved. Ovipositor sheaths evenly setose with stiff erect, fanning hairs apically, black or dark brown externally, whitish internally. Basal 0.25 of ovipositor sheath light brown, nitid.

*Male*.—Unknown.

*Cocoon*.—Unknown.

*Biology*.—Solitary parasitoids reared from *Calpodex ethlius* on *Cauna indica* (Cannaceae) and unidentified hesperiid on corn (Poaceae: *Zea mays*).

*Holotype*.—WEST INDIES: St. Vincent: coll. H. H. Smith. (USNM #6443).

*Other material examined*.—All ♀: COLOMBIA: Vichada PNN: Tuparo Cerro Tomás:  $5^{\circ} 21' \text{ N } 67^{\circ} 51' \text{ W}$ : malaise trap: 140m: [19–29]-VI-2000 coll. W. Villalba (HUMB); WEST INDIES: Grenada: Mount Gay Estate: Leeward Side: coll. H. H.

Smith (USNM); St. Lucia: malaise trap coll. 1970's (2 specimens, CNC); St. Vincent: reared 19-II-1983 (2 specimens, USNM); Sandy Bay: reared 28-X-1983 (USNM); CUBA: Havana: Havana: coll. Baker (5, USNM); Agr. de Cuba: Est. Cont.: coll. 26-II-1921 J. Acuna (USNM); DOMINICA: Point Casse: coll. 22-IX-1964 P. J. Spangler (USNM); coll. J. Maldonado (USNM); 0.2 mi. east Point Casse: coll. V-1966 R. J. Gagne (USNM); Clarke Hall: malaise trap: coll. (21–31)-III-1965 W. W. Wirth (USNM); (21–31)-I-1965 (USNM); St. Chiltern: coll. 2-XI-1966 A. B. Gurney (USNM); USA: Florida: Key Largo: coll. 27-III-1957 H. V. Weems, Jr. (USNM); Texas: Hunt Co.: Clymer Prairie: 3.5mi WNW Celeste: coll. 9-VII-1991 R. J. Cecora (TAMU); TRINIDAD: San Fernando: Golconda Estate: coll. 19-X-1918 H. Morrison (USNM); BELIZE (USNM); VENEZUELA: Guarico Hato Masaguaral: 144km S Calabozo: coll. 11–19-V-1985 Menke and Carpenter (USNM); CURAÇAO: Willemstad: coll. 4-XII-1983 G. E. Bohart (CNC); PERU: Madre de Dios: Puerto Maldonado: coll. 31-I-1984 L. Huggert (CNC); BRAZIL: Rondonia: Fazenda Rancho Grande: 62km S Ariquemes: coll. (12–22)-XI-1991 L. G. Bezark (TAMU). ARGENTINA: Miss. Dos de Mayo: coll. 6-III-1967 (CNC).

*Alphomelon paurogenum* Deans,  
new species  
(Fig. 4h)

*Diagnosis*.—Wings infumated, body black. Genal patches reduced, reaching neither the occiput, the anterior tentorial pits, nor the clypeus.

*Female*.—*Head*: Black, except white spots on genae reduced, centered on malar sutures reaching neither the anterior tentorial pits, the clypeus, nor the occiput, acutely punctate with flexible setae arising from depressions. Face  $2\times$  wider than clypeus. Head appearing round,  $1.2\times$  wider than high, with malar suture  $1.7\times$  line from eye to anterior tentorial pit. Malar space flat, not convex. Clypeus  $1.9\times$

wider than high. *Antennae*: Dark brown to black, as long as body. *Eyes and Ocelli*: Eyes  $2\times$  higher than wide. Ocelli translucent orange, subequal in size. Stemmaticum slightly raised and broadly triangular with posterior-ocellar line  $2.75\times$  lateral-ocellar line, and ocular-ocellar line equal to posterior-ocellar line. *Mouthparts*: Mandibles black to dark brown, setose with stiff hairs, palps brown to dark brown. Labrum black, broadly cleft medially. *Mesosome General*: Tegulae orange to brown, translucent,  $2.1\times$  wider than long, semicircular. Mesoscutum punctate with depressions more dense anteriorly,  $1.4\times$  wider than long. Medial scutellar area obscurely punctate, triangular,  $1.1\times$  longer than anterior scutellar furrow. Anterior scutellar furrow straight with 8–10 pits,  $3.25\times$  longer than line between lateral scutellar furrows. Lateral scutellar furrows carinate basally becoming rugulose and broadening apically with apical edge  $0.6\times$  wider than lunule base width. Lunules semicircular,  $1.3\times$  wider at the base than long. Axillary projections with sculpturing arising at distal 0.33 of lunule base. Mesopleuron minutely punctate, nitid dorsad and ventrad the sternaulus. Metanotum scabriculous, glabrous except raised area posterior to posterior scutellar depression setose ( $\sim 10$  hairs). Posterior scutellar depression  $2\times$  wider than long, divided medially by carina. Lateral metanotal depressions skewed-teardrop shape, carinate-rugose. Propodeum confused rugulose except minutely rugulose areola and posterior propodeal areas. Areola nearly closed with short carina, U-shaped,  $1.67\times$  longer than wide. *Forelegs*: Honey-yellow except brown coxae and trochanters. Tarsal claws brown. Arolia dark brown. *Midlegs*: Honey-yellow except dark brown coxae and trochanters and light brown trochantellae. Tarsal claws brown. Arolia dark brown. *Hind legs*: Coxae and trochanters dark brown to black. Trochantellae light brown. Femurs yellow-orange except apical 0.15 brown. Tibiae yellow-orange

except basal 0.2 white, apical 0.15 brown,  $5.1\times$  longer than wide. Tibial spurs white, interior spur  $1.5\times$  longer than exterior spur. Basitarsus yellow basally fading evenly to dark brown posteriorly,  $5\times$  longer than wide. Remaining tarsomeres dark brown. Tarsal claws reddish brown with 1 spine. Arolia dark brown. *Wings*: Infumated, veins dark brown dorsally, whitish ventrally. Stigma not elongate. Hind wing cu-a angled basally to the midpoint towards body. *Metasoma*: Petiole dark brown to black, trapezoidal,  $1.25\times$  longer than posterior edge, punctate-costate with posterior 0.33 sparsely setose. Petiolar ridge present,  $0.5\times$  as long as petiole, bifurcating with distance between carinae  $0.15\times$  ridge length. Remaining tergites and sternites brown. Medial tergite II obscurely confused-rugulose, nearly rectangular with posterior edge  $1.1\times$  longer than anterior edge, and length  $0.33\times$  as long as anterior edge. Hypopygium evenly setose. *Genitalia*: Ovipositor brown-orange, slightly decurved with exerted portion  $1.1\times$  length of hind basitarsus,  $0.5\times$  as wide as hind basitarsus width. Sheaths straight, evenly setose, desclerotized at tip, brown interiorly and exteriorly.

*Male*.—Wings hyaline, with veins clear to translucent yellow except brown stigma and light brown  $r + 2RS + 2M$ . Hind basitarsus and tarsomeres orange in some (50%).

*Cocoon*.—Unknown.

*Biology*.—All records are from extra-tropical habitats in Argentina and Chile.

*Etymology*.—The name is derived from the Greek root "pauro-" meaning little, and the Latin word "genum" meaning cheek. This name refers to the small cheek patch size in this species.

*Holotype*.—ARGENTINA: B. Aires: La Plata: Fac. Agronomía: coll. (X–XI)-1968 C. Porter (1♀, MCZ).

*Paratypes*.—1♂, same data as holotype (MCZ); 2♀, same data except coll. [18–30]-XI-1968 and 22-XII-1968 (MCZ); ARGENTINA: La Plata: coll. 15-XII-1965 H. and

M. Townes (1♀, AEI); CHILE: El Portezuela: S. Colima: coll. XI-1978 L. Peña (1♀, 1♂ AEI).

*Other material examined.*—Same data as holotype except: coll. 22-XII-1968 (1♀, 1♂, MCZ), coll. (X-XI)-1968 (4♀, 3♂, MCZ), and coll. (18-30)-XI-1968 (2♀, MCZ); La Plata: coll. 15-XII-1965 H. and M. Townes (1♀, AEI); CHILE: Renaico: malleco: coll. 6-XII-1970 T. Cekalovic (1♂, AEI); El Portezuela: S. Colima: coll. XI-1978 L. Peña (1♀, 1♂, AEI); La Obra: Stgo: coll. XII-1978 Luis Peña (1♀, AEI); Concepcion: coll. 3-II-1909 P. Herbst (1♀, 1♂, AEI).

*Alphomelon pyrrhogluteum* Deans,  
new species

*Diagnosis.*—Metasoma entirely yellow except black medial tergite VII and medial black stripe on hypopygium. Mesopleuron not punctate.

*Female.*—*Head:* Back except white coloring on genae extending from anterior tentorial pits to bottom edge of eye, ventrally to mandible and posteriorly to occiput, not extending onto clypeus. Head triangular in appearance, 1.2× wider than high, slightly punctate. Face 2× wider than clypeus. Clypeus 1.5× wider than high. Line between anterior tentorial pit and eye 0.5× line between eye and mandible with malar space flush. *Antennae:* Brown, as long as body. *Eyes and Ocelli:* Eyes 1.7× higher than wide. Ocelli translucent honey-yellow, lateral ocelli 1.2× wider than median ocellus. Stemmaticum slightly raised and broadly triangular with posterior-ocellar line 2.25× longer than lateral-ocellar line and ocular-ocellar line 1.2× posterior ocellar line. *Mouthparts:* Mandibles dark brown, setose with stiff hairs. Labrum light to dark brown, not cleft. Palps orange to light brown. *Mesosoma:* Tegulae semicircular, translucent yellow, 2× wider than long. Mesoscutum 1.25× wider than long, punctate anteriorly and laterally, becoming sparsely punctate medially. Medial scutellar area evenly slightly punctate, trapezoidal, 1.2× longer

anterior scutellar furrow. Anterior scutellar furrow sublinear to slightly curved with 8-9 pits, 2.6× longer than line between lateral scutellar furrows. Lateral scutellar furrows carinate basally becoming rugulose apically with apical edge 0.6× lunule base width. Lunules triangular and 1.2× wider at the base than high. Axillary projections with sculpturing arising at middle lunule base. Mesopleuron not punctate to obscurely punctate with nitid areas dorsad and ventrad sternaulus. Metanotum nitid to obscurely scabriculous, except setose raised area (12 setae) posterior to posterior scutellar depression. Lateral metanotal depressions skewed teardrop shape with rugose surface. Posterior scutellar depression nearly circular, 1.6× wider than long, not fully divided medially. Anterior propodeal areas rugose. Posterior propodeal areas rugulose. Anterior propodeal areas rugose. Areola U-shaped, nearly open with only a small carina anteriorly, rugose to obscurely costate. Propodeal spiracle hairs difficult to distinguish from other setae. *Forelegs:* Honey-orange except black coxae. Tarsal claws orange. Arolia black. *Mid-legs:* Honey-orange except black coxae and dark brown trochanters. Basitarsus light brown becoming darker on apical tarsomeres. Tarsal claws reddish-brown. Arolia black. *Hind legs:* Coxae black, trochanters dark brown, trochantellae honey-orange, femur honey-orange. Tibiae elongate, 6.67× longer than wide, honey-orange except basal 0.25 white and apical 0.15 brown. Tibial spurs white, interior spur 1.75× longer than exterior spur. Basitarsus whitish basally fading evenly to dark brown apically, 5.5× longer than wide, yellow evenly fading to brown. Remaining tarsomeres dark brown. Tarsal claws brown with 1 spine. Arolia black. *Wings:* Hyaline, setose with hairs more dense apically. Stigma slightly elongate. Veins brown dorsally and light brown ventrally. Hind wing curved basally towards body. *Metasoma:* Honey-yellow to honey-orange except

black medial-ventral stripe on hypopygium and medial tergites VI–VII. Petiole punctate, setose on posterior 0.25, rectangular, 2× longer than posterior petiole edge. Petiolar edge present, bifurcating, 0.25× as long as petiole, distance between bifurcating ridges 0.5× as long as ridge length. Medial tergite II slightly punctate, trapezoidal, 0.45× as long as anterior edge, with posterior edge 1.5× as long as anterior edge. Hypopygium evenly setose. *Genitalia*: Ovipositor orange, evenly decurved, exerted portion 2× as long as hind basitarsus, 0.5× as wide as basitarsus width, tapering posteriorly. Sheaths straight, evenly setose, desclerotized at tips, interior and exterior brown.

*Male*.—Unknown.

*Cocoon*.—Unknown.

*Biology*.—All records are from extra-tropical Argentina.

*Etymology*.—Name derived from Greek roots “pyrrho-” meaning orange and “-gluteo” meaning tail, referring to the coloration of the metasoma.

*Holotype*.—ARGENTINA: Jujuy: Posta Lozano: coll. (21–23)-III-1969 C. C. Porter (1♀, MCZ).

*Paratypes*.—ARGENTINA: Villa Nogués: coll. 25-XII-1965 H. and M. Townes (1♀, AEI); Jujuy: Posta Lozano: coll. (29-X)–(4-XI)-1968 C. Porter (1♀, MCZ); Cerro: San Bernardo: Salta: coll. 27-III-1968 C. Porter (1♀, MCZ).

***Alphomelon rhyssocercus* Deans,  
new species  
(Fig. 5d)**

*Diagnosis*.—Medial tergite II densely rugose with raised medial area. Body highly setose giving specimens silvery, hairy appearance.

*Female*.—*Head*: Black to dark brown, deeply punctate and setose. Frons, occiput, and vertex nitid. Genae white with coloration extending posteriorly to edge of eye and to occiput and ventrally to edge of mandible. Head 1.2× wider than high, appearing slightly elongate with malar su-

ture 2× as long as line between anterior tentorial pit and eye edge. Face 2.5× wider than clypeus. Clypeus 1.5× wider than long with light brown patches laterally (Ecuador). *Antennae*: Brown, as long as body. *Eyes and Ocelli*: Eyes 1.7× longer than wide. Ocelli honey yellow, subequal in size. Stemmaticum slightly raised and broadly triangular with posterior-ocellar line 3× longer than lateral-ocellar line. Posterior-ocellar line 0.9× longer than ocular-ocellar line. *Mouthparts*: Mandibles dark reddish-brown, uniformly setose with stiff long hairs. Labrum brown, ventrally flattened with no cleft. Palps setose, honey-yellow. *Mesosoma*: Black to dark brown. Tegulae light brown to brown, semicircular, setose, 2× wider than long. Mesoscutum 1.15× wider than long, deeply punctate with depressions more dense anteriorly. Setose with setae arising from depressions and becoming longer posteriorly. Medial scutellar area as long as anterior scutellar furrow, punctate and setose with long, curved setae arising from depressions, triangular with anterior scutellar furrow 2.5× longer than line between lateral scutellar furrows. Anterior scutellar furrow curved with 8 pits. Lateral scutellar furrows costate basally becoming obscurely rugulose and broader apically with edge 0.85× as wide as lunule base. Lunules nitid, triangular with base width 1.67× lunule length. Axillary projections rugose with sculpturing arising as trench in the lateral 0.5 of lunule base. Mesopleuron deeply punctate, villous with long setae arising from depressions, area dorsad and ventrad to the sternaulus nitid. Metanotum obscurely rugulose, glabrous except for setose lateral metanotal depressions and raised area posterior to posterior scutellar depression. Posterior scutellar depression 2.75× wider than long, divided centrally. Lateral metanotal depressions tear-drop shaped and rugose. Propodeum setose, rugose. Propodeal areola U-shaped, obscurely costate, open dorsally. Posterior propodeal areas glabrous,

rugulose. Area anterior to propodeal spiracle with tuft of thickened setae bent at tip. *Forelegs*: Honey-yellow except brown coxae and trochantellae. Tarsal claws reddish brown, pectinate with two spines. Arolia dark brown. *Mid-legs*: Color as forelegs except distal 0.25 of femur and 0.15 of tibia brown. *Hind legs*: Coxae, trochanters black to dark brown. Trochantellae honey orange, setose. Femur with basal 0.2–.5 honey-yellow, distal 0.2–.5 dark brown. Tibiae  $2.5\times$  longer than basitarsus with basal 0.2 white, distal 0.2 dark brown (almost entirely honey-yellow in some specimens). Tibial spurs densely setose, white, interior spur  $1.3\times$  longer than exterior spur. Basitarsus dark brown except basal  $0.25\times$  whitish,  $5\times$  longer than wide. Remaining tarsomeres dark brown. Tarsal claws reddish brown pectinate with 2 spines. Arolia dark brown. *Wings*: Veins uniformly brown. Membrane hyaline. Setosity becoming more dense apically. Hind cu-a slightly curved posteriorly towards body. *Metasoma*: Petiole black to light brown, trapezoidal, tapering slightly anteriorly,  $1.1\times$  longer than posterior edge, costulate, posterior 0.5 setose. Petiolar ridge strongly raised anteriorly,  $0.5\times$  as long as petiole, bifurcating arms connecting posteriorly (weakly in some specimens) forming elongate, elliptical depressed area,  $0.2\times$  as wide as posterior edge. Tergum I spiracle surrounded by setae. Medial tergites brown (II and III in specimens from Panama light brown). Medial tergite II rectangular, anterior edge subequal to posterior edge, rugose with medial area raised. Medial tergites with setae extending past posterior edges. Ventral and lateral tergites obscurely variolate anteriorly (may be difficult to see in some specimens unless metasoma is inflated). Hypopygium evenly setose except glabrous medially. *Genitalia*: Ovipositor reddish orange, weakly decurved, as long as hind basitarsus. 2–3 teeth weakly represented on ventral valve. Ovipositor sheaths whitish internally, dark brown

and evenly setose externally with spreading stiff setae distally.

*Male*.—Little variation, body slightly smaller, antennae longer than female.

*Cocoon*.—Unknown.

*Biology*.—All records are from rainforest.

*Etymology*.—The name is derived from the Greek roots "rhyso-" meaning wrinkled and "-cercus" meaning tail. The name refers to sculpturing on medial tergite II.

*Holotype*.—ECUADOR: Pich.: Rio Palengue R. S.: 200m: coll. 2-II-1983 Masner and Sharkey (1♀, CNC).

*Paratypes*.—ARGENTINA: B. Aires: LaPlata (Fac. Agronomía): [X–XI]-1968: coll. C. Porter (2♀, INHS); COSTA RICA: Puntarenas: Golfito: malaise trap 8AM–5PM: 27-VI-1976 M. Wasbauer (1♀ INHS); COSTA RICA: Puntarenas: R.F. (=Reserva Forestal) Golfo Dulce: 5 km. W. Piedras Blancas: 100m: malaise trap [XI–XII]-1992 coll. Paul Hanson (1♀, UWY); ECUADOR: Pich.: Tinalandia: 800m.: coll. 2-II-1983 Masner and Sharkey (1♀, CNC); PERU: Tingo Maria: Rio Palengue: coll. [20–27]-I-1968 A. Garcia and C. Porter (1♀, MCZ); PERU: Lima: Chosica: coll. 15-XII-1984 Lars Huggert (1♂, AEI); TRINIDAD: St. George: Maracas Bay Village: coll. 21-III-1985 G. F. and J. F. Hevel (1♂, USNM).

*Other material examined*.—ECUADOR: Pich.: Rio Palengue R. S.: 200m: coll. 4-II-1983 Masner and Sharkey (3♀, 4♂, CNC); VENEZUELA: Puerto Cabello: coll. P. Anduze (5–6)-II-1940 (1♂, USNM); Patanemo: coll. (5–11)-III-1940 P. Anduze (1♀, USNM); COLOMBIA: Valle Colombia: 17km S of Cali: 1000m in weeds: coll. 10-IV-1971 Eberhard and Garcia (1♂, CNC); TRINIDAD: Curepe: malaise trap: coll. VIII-1978 (1♂, CNC); 29-XII-1977 (1♀, CNC); Mucurapo: coll. 22-II-1961 N. Gopaul (1♂, CNC); PANAMA: Las Cumbres: malaise trap: coll. (26–30)-XI-1981 H. Wolda (2♂, CNC).

*Alphomelon simpsonorum* Deans,  
new species

*Diagnosis*.—Yellow to light brown coxae. Medial tergites I–III yellow.

*Female*.—*Head*: Black except white spots on gena extending from anterior tentorial pit posteriorly to occiput, dorsally to edge of eye, ventrally to base of mandible, and anteriorly to edge of clypeus. Head smooth, setose, round,  $1.15\times$  wider than high. Face  $2.5\times$  wider than clypeus. Clypeus  $1.3\times$  wider than high. Malar suture  $1.67\times$  longer than line between anterior tentorial pit and eye. Malar space very slightly convex. *Antennae*: Dark brown, as long as body. *Eyes and Ocelli*: Eyes  $1.7\times$  higher than wide. Ocelli clear and colorless to translucent-orange (older specimens), subequal in size. Stemmaticum slightly raised, broadly triangular with posterior-ocellar line  $3.33\times$  lateral-ocellar line. Ocular-ocellar line  $1.1\times$  posterior-ocellar line. *Mouthparts*: Mandibles dark brown, setose with long stiff hairs. Labrum not cleft medially, dark brown to brown. Palps honey-yellow. *Mesosoma*: Dark brown to black. Tegulae translucent-yellow, semicircular, smooth,  $1.7\times$  wider than long. Mesoscutum  $1.4\times$  wider than long, punctate anteriorly becoming sparsely punctate laterally and smooth medially. Medial scutellar area smooth, triangular,  $1.2\times$  longer than anterior scutellar furrow. Anterior scutellar furrow straight with 6 pits,  $2.4\times$  longer than line between lateral scutellar furrows. Lateral scutellar furrows costate basally becoming rugulose and wider apically with apical edge  $0.6\times$  lunule base width. Lunules rounded-triangular,  $2.5\times$  wider at base than high. Axillary projections with sculpturing arising at lateral  $0.33\text{--}0.5$  lunule base. Mesopleuron obscurely punctate, setose except nitid area dorsad and ventrad sternaulus. Mesonotum nitid except sparsely setose (5–10 setae) raised area posterior to posterior scutellar depression. Lateral metanotal depressions skewed

tear-drop shape, rugose, setose. Posterior scutellar depression ovular,  $2.67\times$  wider than long, not completely divided medially. Anterior propodeal areas rugose. Areola rugulose, nearly closed anteriorly with shallow carina,  $1.5\times$  longer than wide. Posterior propodeal areas rugulose. Propodeal spiracular hairs present as cluster anterior to spiracle. *Forelegs*: Entirely honey-orange to honey-yellow (10% with coxae light brown). Tarsal claws and arolia brown. *Mid-legs*: Entirely honey-orange to honey-yellow (50% with basal  $0.5$  coxae light brown). Tarsal claws and arolia brown. *Hind legs*: Coxae entirely honey-orange (33%), with basal  $0.5$  light brown (33%), or entirely light brown (33%). Trochanters, trochantellae, and femurs honey-orange. Tibiae honey-orange except basal  $0.15$  whitish, interior  $0.15$  brown,  $4.5\times$  longer than wide. Tibial spurs white, interior spur  $1.7\times$  exterior spur. Basitarsus honey-yellow basally fading evenly to light brown apically,  $5.8\times$  longer than wide. Remaining tarsomeres light brown. Tarsal claws brown with 2 spines. Arolia brown. *Wings*: Membranes hyaline. Setose with setosity more dense apically. Veins brown dorsally and whitish ventrally. Stigma not elongate. Hind wing cu-a angled posteriorly towards body. *Metasoma*: Petiole yellow to brownish-orange, parallel sided, rectangular,  $2\times$  longer than posterior edge, smooth, glabrous except posterior  $0.25$  setose. Petiolar ridge present,  $0.3\times$  as long as petiole,  $0.25\times$  as wide between bifurcating arms as posterior edge. Lateral tergite I light yellow. Medial tergites II and III honey-yellow to honey-orange. Medial tergite II trapezoidal,  $0.4\times$  as long as anterior edge, anterior edge  $0.7\times$  posterior edge. Lateral tergites II–VII honey-yellow. Sternites honey-yellow. Medial tergites IV–VII brown. Hypopygium evenly setose, yellow with medial area brown. *Genitalia*: Exerted portion of ovipositor  $1\text{--}1.25\times$  as long as hind basitarsus,  $0.33\text{--}0.43$  as wide as hind basitarsus, slightly decurved posteriorly, honey-orange. Sheaths

black, smooth, evenly setose, desclerotized at tips.

*Male*.—Unknown

*Cocoon*.—Unknown.

*Biology*.—Reared as solitary parasitoid from unidentified hesperiine on grass (Poaceae) in Costa Rica. All records are from rainforest sites.

*Etymology*.—This species is named in honor of television's Simpson family for helping the author maintain a positive attitude throughout his educational endeavors.

*Holotype*.—BRAZIL: Nova Teutonia: 27° 11' S, 52° 23' W: 300–500m: coll. I-1965 Fritz Plaumann (1♀, CNC).

*Paratypes*.—BRAZIL: Campina Grande: nr. Curitiba: coll. 22-II-1966 H. and M. Townes (1♀, AEI); 11-II-1966 (1♀, AEI); 16-II-1966 (1♀, AEI); PARAGUAY: Salto del Guaira: coll. XII-1971 L. E. Peña (1♀, CNC); COSTA RICA: voucher #97-CALI-128: (1♀, INBIO); COSTA RICA: Puntarenas: R.F. Golfo Dulce: 3 km. SW. Rincon: 10m: malaise trap: [X–XII]-1990 coll. Paul Hanson (1♂, UWY).

*Other material examined*.—BRAZIL: coll. III-1957 Fritz Plaumann (1♀, CNC); coll. III-1968 Fritz Plaumann (1♀, CNC).

### *Alphomelon talidicida* (Wilkinson)

(Figs. 4d, 6e)

*Apanteles talidicida* Wilkinson 1931:75–90. Cotypes from NHM and USNM examined.

*Diagnosis*.—Ovipositor  $>1.5\times$  hind basitarsus, straight. Hind wing cu-a strongly angled medially towards body. White spots on genae extending onto clypeus as dull yellow-brown coloration.

*Female*.—*Head*: Dark brown except white coloration on gena extending from anterior tentorial pit posteriorly to occiput, dorsally to edge of eye, ventrally to mandible base, anteriorly onto clypeus as light brown coloration. Head slightly punctate,  $1.2\times$  wider than high. Face  $2.6\times$  wider than clypeus. Clypeus  $1.5\times$  wider than high. Malar suture  $1.44\times$  line be-

tween anterior tentorial pit and eye. Malar space not convex. *Antennae*: Dark brown, as long as body. *Eyes and Ocelli*: Eye  $1.67\times$  higher than wide. Ocelli clear, sub-equal in size. Stemmaticum slightly raised, triangular with posterior-ocellar line  $2.33\times$  lateral-ocellar line. Ocular-ocellar line  $1.4\times$  posterior-ocellar line. *Mouthparts*: Mandibles reddish-brown, setose. Labrum brown, flattened ventrally. Palps honey-yellow. *Mesosoma*: Dark brown to black. Tegulae translucent honey-yellow,  $2.25\times$  wider than long, semicircular. Mesoscutum  $1.4\times$  wider than long, anterior  $0.6$  punctate and setose, posterior  $0.4$  smooth and glabrous anterior to anterior scutellar furrow. Medial scutellar area triangular, smooth, setose,  $0.8\times$  longer than anterior scutellar furrow. Anterior scutellar furrow straight with 8–10 pits,  $2.4\times$  longer than line between lateral scutellar furrows. Lateral scutellar furrows obscurely costate basally becoming nearly nitid and wider apically with apical edge  $0.4\times$  lunule base width. Lunules short, semicircular,  $4\times$  wider at base than high. Axillary projections with sculpturing arising at lateral  $0.2$  lunule base. Mesopleuron punctate, setose except for nitid area dorsad and ventrad the sternaulus. Mesonotum nitid except rugulose lateral metanotal pits and setose ( $\sim 10$  setae) raised area posterior to posterior scutellar depression. Lateral metanotal depressions skewed tear-drop shaped. Posterior scutellar depression  $2\times$  wider than long, divided medially (difficult to see full division). Anterior propodeal areas and area anterior to areola rugose. Posterior areas and areola nearly smooth to obscurely rugulose. Areola closed anteriorly with shallow carina, U-shaped,  $1.25\times$  longer than wide. Cluster of setae present anterior to propodeal spiracles. *Forelegs*: Honey-yellow except brown coxae and light brown trochanters. Tarsal claws reddish-brown. Arolia black. *Mid-legs*: Honey-yellow except brown coxae and light brown trochanters. Tarsal claws reddish-brown. Arolia black. *Hind*

*legs:* Coxae dark brown. Trochanters brown. Trochantellae honey-yellow. Femurs honey-yellow except apical 0.15 brown. Tibiae honey-yellow except basal 0.15 whitish, apical 0.15 brown, 4.9× longer than wide. Tibial spurs white, interior spur 1.6× longer than exterior spur. Basitarsi whitish basally fading evenly to brown apically, 4.3× longer than wide. Remaining tarsomeres brown. Tarsal claws reddish-brown with 2 spines. Arolia black. *Wings:* Narrow. Membranes hyaline. Stigmas not elongate. Veins brown dorsally, whitish ventrally. Hind wing cu-a strongly angled medially back towards body. *Metasoma:* Dark brown. Petiole trapezoidal, 1.4× longer than posterior edge, glabrous except posterior 0.25 sparsely setose. Petiolar ridge present, 0.4× as long as petiole, 0.2× as wide between bifurcating arms as posterior edge. Medial tergite II smooth, trapezoidal, sparsely setose, orange brown (50%), 0.3× as long as anterior edge, posterior edge 1.4× anterior edge. Hypopygium evenly setose. *Genitalia:* Exerted portion of ovipositor orange-yellow, straight, 1.65× longer than hind basitarsus, 0.33× as wide as hind basitarsus, ventral valve with 2 teeth. Sheaths straight, evenly setose, brown exteriorly, whitish interiorly, with tips desclerotized.

*Male.*—As female but smaller with lighter wing veins. Stigmas solid brown.

*Cocoon.*—Unknown.

*Biology.*—Reared as gregarious parasitoid from *Talides sergestus* and *Talides sinois* on *Heliconia latispatha* (Heliconiaceae) and *Musa cavendishii* (Musaceae), in rainforest in Costa Rica.

*Holotype.*—GUYANA (labeled BRITISH GUIANA): Plan. Blair-Mont: Berbice: reared 2-II-1924 H. E. Box (1 ♀, NHM). Holotype labeled as cotype. Specimens designated by Wilkinson as cotypes from same series deposited in USNM should be considered paratypes.

*Other material examined.*—BELIZE (labeled BRITISH HONDURAS): Middlesex:

125m: coll. 25-III-1965 E. C. Welling (1 ♀, CNC); BRAZIL: Utinga: Belem: coll. XII-1966 S. J. Oliveira (2 ♀, AEI); Sinop: Mato Grosso: coll. X-1976 M. Alvarenga (1 ♀, CNC); coll. XI-1975 M. Alvarenga (1 ♀, CNC); coll. II-1976 O. Roppa (1 ♀, CNC); Caruaru: Pernambuco: coll. IV-1972 M. Alvarenga (1 ♀, CNC); 900m: coll. IV-1972 M. Alvarenga (1 ♀, AEI); Sao Paulo: Galia Est.: coll. VII-1974 F. M. Oliveira (2 ♀, AEI); M. G.: Caceres: coll. XI-1974 M. Alvarenga (2 ♀, AEI); COLOMBIA: Putumayo: 0° 50' N 76° 30' W: 400m: coll. 30-XI-1972 J. Helava (1 ♀, CNC); COSTA RICA: La Lola: coll. 12-VIII-1961 (1 ♀, AEI); Heredia: Est. Biol. La Selva: 10.26N, 84.01W: 50–150m: coll. (II–IV)–1993 P. Hanson (1 ♀, UWY); 3km S Puerto Viejo: OTS-La Selva: 100m: coll. (1–15)–IX-1992 P. Hanson (4 ♀, UWY); coll. X-1992 P. Hanson (2 ♀, UWY); Limon: 4km NE Bribri: 50m: coll. (IX–XI)–1989 P. Hanson (1 ♀, UWY); Guanacaste: Area de Conservación Guanacaste: Sector Cacao: Gongora: 560m: DHJ voucher #s 94-SRNP-10491, 95-SRNP-9791, 98-SRNP-3502: reared D. H. Janzen et al. (>10 ♀, >10males, DHJ); Rancho Harold: 720m: DHJ voucher #97-SRNP-2000: reared D. H. Janzen et al. (1 ♀, 1 ♂); Sector San Cristobal: Potrero Bufalo: 560m: DHJ voucher #97-SRNP-6718: reared D. H. Janzen et al. (1 ♀, 1 ♂, DHJ); Sector El Hacha: Sendero a Casa Numero 3: reared 11-VIII-2000 R. Moraga (1 ♀, 1 ♂, DHJ voucher #00-SRNP-3708); reared 18-VIII-2000 R. Moraga (1 ♀, 1 ♂ DHJ voucher #00-SRNP-3889); Alajuela: Sector San Cristobal: Sendero Perdido: reared 18-VII-2000 J. M. Perez (1 ♀, 1 ♂, DHJ voucher #00-SRNP-12084); Sector San Cristobal: Cemeterio Viejo: reared 27-IX-2000 F. Quesada (1 ♀, 1 ♂, DHJ voucher #00-SRNP-12975); ECUADOR: Pich.: S. Domingo: 47km S R. Palenque: 200m: coll. (18–30)–V-1975 Peck (7 ♀, CNC); coll. (22–31)–VII-1976 S. and J. Peck (1 ♀, CNC); 22-VII-1976 S. and J. Peck (1 ♀, CNC); Pichincha: 16km SE Sto. Domingo: Tinalandia: 500m: coll. (4–14)–VI-1976 S. and J. Peck (1 ♀, CNC); 680m: coll. 1975 S. and J. Peck

(2♀, CNC); Napo: Limoncocha: 250m: coll. (15–28)-VI-1976 S. and J. Peck (1♀, CNC); GUYANA: Plan. Blair-Mont: Berbice: reared 2-II-1924 H. E. Box (4♀, 1♂, USNM); MEXICO: Oax.: Metate: 85.5km SW Tuxtpec: 900m: coll. 18-X-1962 H. and M. Townes (1♀, AEI); Chiapas: Muste: near Huixtla: 440m: coll. X-1970 Welling (1♀, CNC); PANAMA: Las Cumbres: coll. (3–10)-II-1982 H. Wolda (1♀, CNC); PERU: Quincemil: coll. (20–30)-X-1962 R. D. Shenefelt (3♀, AEI); coll. (10–15)-XI-1962 R. D. Shenefelt (2♀, AEI); TRINIDAD: St. Augustine: reared IV-1950 F. J. Simmonds (4♀, 2 USNM, 2 CNC); VENEZUELA: Zulia: El Tucuco: 200m: coll. IV-1981 L. Masner (1♀, CNC).

*Alphomelon winniewertzae* Deans,  
new species  
(Fig. 4g)

*Diagnosis*.—Face strongly punctate, genae compressed with small white patches, labrum yellow, mesoscutum evenly and strongly punctate, legs mostly uniform orange-yellow.

*Female*.—*Head*: Black, except genae white with coloration extending posteriorly from anterior tentorial pit to line 0.5 way between malar suture and occiput and ventrally to edge of mandible, never extending onto clypeus or to occiput, foveolate with setae arising from depressions except nitid frons, occiput, and vertex. Setosity slightly more dense between antennae and surrounding stemmaticum. Face 2× wider than clypeus. Head 1.25× wider than high, appearing compressed with malar suture 2× longer than line between anterior tentorial pit and eye, malar suture appearing. Clypeus 2.5× wider than high. *Eyes and Ocelli*: Eyes 1.6× longer than wide. Ocelli clear to honey-yellow, subequal in size. Stemmaticum, broadly triangular with posterior ocellar line 3.33× longer than lateral ocellar line. Ocular ocellar line equal to posterior ocellar line. *Antennae*: Brown, as long as body. *Mouthparts*: Mandibles light brown to

black, evenly setose on outer edge. Labrum yellow, 2.5× wider than long, slightly cleft medially. Palps light yellow, evenly setose with stiff hairs. *Mesosoma*: Black. Tegulae 2× wider than long, yellow, translucent, semicircular. Mesoscutum 1.25× wider than long, densely and evenly foveolate, densely setose with setae arising from depressions. Medial scutellar area triangular with length as long as anterior scutellar furrow, punctate, setose with long setae arising from depressions. Anterior scutellar furrow 2.75× line between lateral scutellar furrows, straight with 8–10 pits. Axillary projections with sculpturing arising at midpoint of lunule base. Lunules elongate and rounded, with base width 1.5× height. Lateral scutellar furrows broader at base and at distal edge; distal edge 0.67× lunule base width. Mesopleuron deeply punctate, setose with hairs arising from depressions, nitid dorsad and ventrad the sternaulus. Metanotum nitid, glabrous except for sparsely setose lateral metanotal pits and raised area posterior to medial metanotal depression. Posterior scutellar depression flattened, shallow and barely divided medially, ovular, 3× wider than long. Lateral metanotal depressions ovular, rugose. Propodeum areolate-rugose except carinate areola and rugulose posterior propodeal areas. Anterior propodeal areas strongly rugose. Propodeal areola U to V-shaped, open anteriorly. Area anterior to propodeal spiracle with sparse tuft of stiff setae (difficult to distinguish). *Forelegs*: Honey-yellow except light brown coxae. Tarsal claws light brown to reddish brown, one spine. Arolia dark brown. *Mid-legs*: Honey-yellow except light brown coxae. Tarsal claws light brown to reddish brown, one spine. Arolia dark brown. *Hind legs*: Honey-yellow except dark-brown to black coxae. Coxae strongly punctate. Tibia 2× longer than basitarsus. Tibial spurs white, setose, interior spur 1.67× longer than exterior spur. Basitarsus light brown to honey-yellow, 6× longer than wide. Tar-

someres light brown, occasionally entirely honey-yellow (30%). Tarsal claws light brown to reddish brown, one spine. Arolia dark brown. *Wings*: Veins whitish ventrally, mostly brown dorsally. Membrane hyaline, setose with setosity slightly more dense apically. Stigma slightly elongate. Hind cu-a slightly and evenly curved. *Metasoma*: Petiole black to brown, rugulose, setose on posterior 0.33,  $1.2\times$  longer than posterior edge. Sub-rectangular, tapering only slightly anteriorly, posterior edge  $1.5\times$  length of petiolar ridge. Petiolar ridge raised strongly anteriorly, bifurcating arms connected posteriorly forming elongate teardrop shape. Tergites dark brown to brown, setose. Tergite II rugulose, trapezoidal with posterior edge  $1.3\times$  anterior edge. Medial tergites with setae extending past posterior edges. Ventral and lateral tergites obscurely variolate anteriorly (difficult to observe unless metasoma is inflated). Hypopygium setose except ventrally glabrous. *Genitalia*: Ovipositor decurved, reddish orange,  $2\times$  longer than hind basitarsus,  $0.56\times$  as thick as hind basitarsus width. Ovipositor sheaths evenly setose, brown externally, whitish internally, with long, stiff setae at desclerotized tips.

*Male*.—Smaller, wing veins whiter, stigma pale to clear.

*Cocoon*.—Unknown.

*Biology*.—Reared from *Calpodes ethlius* on *Canna indica* in Costa Rica and *Euphyes* sp. on unknown plant in USA. This species ranges from Costa Rican dry forest through variable habitats to Canada.

*Etymology*.—This species is named in remembrance of Winnifred I. Wertz for her inspiration, love, and unconditional support.

*Holotype*.—USA: Virginia: Louisa Co.: 4 mi. S. Cuckoo: coll. (1–18)-VIII-1987 J. Kloke and D. R. Smith (1♀, USNM).

*Paratypes*.—USA: Arkansas: Montgomery Co.: NW at Mt. Ida: F. R. W58A: Womble 1658-16: malaise trap: coll. (14–21)-VI-1994 C. Lewis (2♀, INHS); USA: Virginia:

Louisa Co.: 4 mi. S. Cuckoo: malaise trap: coll. [28-V]–[5-VII]-1987 J. Kloke and D. R. Smith (1♂, USNM); USA: Virginia: Louisa Co.: 4 mi. S. Cuckoo: coll. (1–18)-VIII-1987 J. Kloke and D. R. Smith (1♀, USNM); USA: Texas: Kerrville: 12-V-1988: coll. H. and M. Townes (1♀, AEI); Texas: Fredericksburg: coll. 19-V-1988 H. and M. Townes (1♀, AEI); Texas: Brazos Co.: College Station: Lick Creek Park: [2–16]-V-1988: coll. Wharton and Praetorius (1♀, TAMU); Texas: Kerr Co.: Center Point: [7–13]-VIII-1987: coll. Wharton and Praetorius (1♀, TAMU); COSTA RICA: Area de Conservación Guanacaste: Sector Horizontes: Bejuco: 180m: (1♀, 93-SRNP-5334, INHS); Area de Conservación Guanacaste: (1♀, 94-SRNP-7382, INHS); USA: Ohio: Hocking Co.: Pine Creek: Rt. 11: malaise trap: coll. 5-IX-1987 J. B. Whitfield (1♀, INHS);.

*Other material examined*.—CANADA: Ontario: Marmora: coll. 8-VII-1952 C. Boyle (1♀, CNC); USA: Florida: Liberty Co.: Torreya S.P.: coll. 8-X-1980 L. Masner and B. Bowen (1♀, (4♂, CNC); Kansas: Lawrence: coll. 13-VIII-1896 Hugo Kahl (1♂, USNM); Jefferson Co.: Sarcoxie Wash: coll. 7-VIII-1896 Hugo Kahl (1♀, USNM); Massachusetts: coll. C. F. Baker (1♀, USNM); Michigan: Midland Co.: coll. 9-VIII-1951 R. R. Dreisbach (1♀, USNM); North Carolina: Bertie Co.: near Cahaba: malaise trap: coll. 2-VI-1976 N.C.D.A. (1♀, CNC); Tennessee: Lexington: Natchez Trace S. P.: malaise trap: coll. 9–11-VI-1972 G. Heinrich (1♀, CNC); Texas: Kerr Co.: Center Point: malaise trap: coll. (7–13)-VIII-1987 Wharton and Praetorius (2♀, TAMU); Brazos Co.: College Station: Lick Creek Park: coll. (2–16)-V-1988 Wharton and Praetorius (1♀, TAMU); Hidalgo Co.: McAllen: Valley Botanical Garden: coll. (1–13)-VI-1973 C. C. Porter (1♀, USNM); Hidalgo Co.: McAllen: Valley Botanical Garden: coll. 27-VIII–8-IX-1973 C. C. Porter (1♀, USNM); Big Bend National Park: Oak Spring: 4500ft.: coll. 14-V-1959 W. R. M. Mason (1♀, CNC); Dallas: cotton: coll.

13-X-1906 Hunter (1♀, USNM); Waco: cotton: coll. 15-IX-1939 P. A. Glick (1♂, USNM); Virginia: Louisa Co.: 4 mi. S Cuckoo: malaise trap: coll. (1-18)-VIII-1987 J. Kloke and D. R. Smith (4♀, USNM); Virginia: Louisa Co.: 4 mi. S Cuckoo: malaise trap: coll. 28-V-5-VI-1987 J. Kloke and D. R. Smith (1♂, USNM); Virginia: Louisa Co.: 6 mi. S Cuckoo: coll. 2-IX-1987 P. Thomas and D. R. Smith (1♂, INHS); Washington D.C.: coll. 19-VIII-1911 Fred K. Knab (1♀, USNM); MEXICO: Guadalajara: coll. Crawford (1♀, USNM); Veracruz: 3 mi. W Cardena: coll. 4-VII-1971 Clark, Murray, Hart, and Schaffner (1♀, TAMU); BRAZIL: 1956 (1♀, USNM).

***Alphomelon xestopyga* Deans,  
new species  
(Fig. 5f)**

*Diagnosis*.—Hind wing cu-a strongly angled at midpoint towards body. Petiolar ridge represented as a slight depression with petiole rugulose and slightly punctate. White spots on genae extending onto clypeus as dull yellow-brown coloration. Tarsal claws with 3-4 spines. Ovipositor evenly decurved.

*Female*.—*Head*: Dark brown except white coloration on gena extending from anterior tentorial pit posteriorly to occiput, dorsally to edge of eye, ventrally to mandible base, anteriorly onto clypeus as light brown coloration. Head slightly punctate,  $1.1\times$  wider than high. Face  $2.1\times$  wider than clypeus. Clypeus  $1.5\times$  wider than high. Malar suture  $1.75\times$  line between anterior tentorial pit and eye. Malar space not convex. *Antennae*: Brown, as long as body. *Eyes and Ocelli*: Eye  $1.8\times$  higher than wide. Ocelli clear to slightly yellow, sub-equal in size. Stemmaticum slightly raised, triangular with posterior-ocellar line  $3\times$  lateral-ocellar line. Ocular-ocellar line  $1.0\times$  posterior-ocellar line. *Mouthparts*: Mandibles reddish-brown, setose. Labrum light brown, flattened ventrally to slightly cleft. Palps orange-yellow. *Mesosoma*: Dark brown to black. Te-

gulae translucent honey-yellow,  $2.0\times$  wider than long, semicircular. Mesoscutum  $1.3\times$  wider than long, punctate and setose except medial area smooth and glabrous. Medial scutellar area triangular, smooth, setose,  $0.8\times$  longer than anterior scutellar furrow. Anterior scutellar furrow straight with 7-8 pits,  $3\times$  longer than line between lateral scutellar furrows. Lateral scutellar furrows obscurely costate basally becoming rugulose and wider apically with apical edge  $0.4\times$  lunule base width. Lunules short, triangular,  $2\times$  wider at base than high. Axillary projections with sculpturing arising at lateral 0.2 lunule base. Mesopleuron punctate, setose except for nitid area dorsad and ventrad the sternaulus. Mesonotum nitid except rugulose lateral metanotal pits and setose ( $\sim 10$  setae) raised area posterior to posterior scutellar depression. Lateral metanotal depressions skewed tear-drop shaped. Posterior scutellar depression  $2\times$  wider than long, divided medially (difficult to see full division). Anterior propodeal areas and area anterior to areola rugose. Posterior areas and areola nearly smooth to obscurely rugulose. Areola closed anteriorly with series of carinae, U-shaped,  $1.25\times$  longer than wide. Cluster of setae present anterior to propodeal spiracles. *Forelegs*: Honey-yellow except brown coxae and light brown trochanters. Tarsal claws reddish-brown. Arolia brown. *Mid-legs*: Honey-yellow except brown coxae and light brown trochanters. Tarsal claws reddish-brown. Arolia black. *Hind legs*: Coxae dark brown. Trochanters brown. Trochantellae honey-yellow. Femurs honey-yellow except apical 0.2 brown. Tibiae honey-yellow except basal 0.15 whitish, apical 0.10 brown,  $4.9\times$  longer than wide. Tibial spurs white, interior spur  $1.4\times$  longer than exterior spur. Basitarsi whitish basally fading evenly to light brown apically,  $4.0\times$  longer than wide. Remaining tarsomeres brown. Tarsal claws reddish-brown with 3 (50%) or 4 (50%) spines. Arolia black. *Wings*: Membranes hyaline. Stigmas

slightly elongate. Veins brown dorsally, whitish ventrally, becoming clear basally. Hind wing cu-a strongly angled medially back towards body. *Metasoma*: Dark brown. Petiole rectangular,  $1.4\times$  longer than posterior edge, glabrous except posterior  $0.3\times$  sparsely setose, rugulose and slightly punctate. Petiolar ridge represented as slight depression. Medial tergite II smooth, trapezoidal, brown, posterior  $0.5\times$  sparsely setose,  $0.3\times$  as long as anterior edge, posterior edge  $1.4\times$  anterior edge. Hypopygium evenly setose. *Genitalia*: Exerted portion of ovipositor orange-yellow, evenly decurved,  $1.0\times$  as long as hind basitarsus,  $0.33\times$  as wide as hind basitarsus, ventral valve with 2 teeth. Sheaths straight, evenly setose, brown exteriorly, whitish interiorly, with tips desclerotized.

*Male*.—As female, but smaller with lighter wing veins. Stigmas solid brown. Color patterns on legs with lighter shades of yellow and brown.

*Cocoon*.—Unknown.

*Biology*.—Reared as gregarious parasitoid from *Quinta cannae* on *Thalia geniculata*, from *Cynea irma* on *Maranta arundinacea* and *Calathea panamensis*, from *Saliana fusta* on *Maranta arundinacea* and *Calathea macrosepala*, from *Rhinthon cubana* on *Maranta arundinacea*, *Calathea lutea*, and *Calathea macrosepala*, from *Calpodes ethlius* on *Thalia geniculata*, *Maranta arundinacea*, *Calathea macrosepala*, and *Canna indica* in dry forest in Costa Rica (Janzen and Hallwachs 2002), and collected in rainforest malaise traps.

*Etymology*.—The name is derived from the Greek roots "xesto-" meaning polished and "-pyga" meaning rump. It refers to the petiole sculpturing.

*Holotype*.—COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Cafetal: 300m: 92-SRNP-4006: (1♀, USNM).

*Paratypes*.—COSTA RICA: Guanacaste: Area de Conservación Guanacaste: Sector Santa Rosa: Cafetal: 300m: 92-SRNP-4006: (1♂, USNM); COSTA RICA: Area de Con-

servación Guanacaste: Sector Santa Rosa: Cafetal: 300m: 92-SRNP-4011: (1♀, CNC); COSTA RICA: Guanacaste: Area de Conservación Guanacaste: Sector Santa Rosa: Cafetal: 300m: DHJ voucher #92-SRNP-4011: reared 27-VII-1992 D. H. Janzen et al. (1♂, CNC); COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Cafetal: 300m: 92-SRNP-2757: (1♀, IN-BIO); COSTA RICA: Area de Conservación Guanacaste: Sector Santa Rosa: Cafetal: 300m: 92-SRNP-3991: (1♀, AEI); COSTA RICA: Area de Conservación Guanacaste: Sector Horizontes: Bejuco: 180m: #95-SRNP-8368: (1♀, UWY); COSTA RICA: Heredia: 3km. S Puerto Viejo: OTS La Selva: 100m: malaise trap: [1-15]-IX-1992 coll. P. Hanson (4♀, UWY); COSTA RICA: Heredia: 3km. S Puerto Viejo: OTS La Selva: 100m: malaise trap: X-1992 coll. P. Hanson (3♀, UWY); COSTA RICA: Limon: 4km NE Bribri: 50m: malaise trap: IV-VI-1990 coll. P. Hanson (1♀, UWY); COSTA RICA: Guanacaste: Cerro el Hacha: NW Volcán Orosi: 300m: malaise trap 1988 (1♀, UWY). COSTA RICA: Area de Conservación Guanacaste: 92-SRNP-4929 (1♀, INHS), 93-SRNP-6610 (1♀, 1♂, INHS), 92-SRNP-4040 (1♀, 1♂, INHS), 96-SRNP-10081 (1♀, 1♂, INHS), 97-SRNP-9479 (1♀, 1♂, INHS), 97-SRNP-9503 (1♀, 1♂, INHS), 97-SRNP-9840 (1♀, 1♂, INHS), 92-SRNP-4013 (1♀, 1♂, UWY), 92-SRNP-0414 (1♀, UWY), 92-SRNP-4033 (1♀, 1♂, UWY), 92-SRNP-4034 (1♀, 1♂, UWY), 92-SRNP-4037 (1♀, 1♂, UWY), 92-SRNP-4132 (1♀, 1♂, UWY), 92-SRNP-4392 (1♀, 1♂, UWY), 92-SRNP-4407 (1♀, 1♂, UWY), 93-SRNP-3739.1 (female), 93-SRNP-4416 (1♂, UWY), 93-SRNP-5194 (1♂, UWY), 93-SRNP-5203 (1♀, UWY), 93-SRNP-6226 (1♂, UWY), 93-SRNP-6228 (1♀, UWY), 93-SRNP-6229 (1♀, 1♂, UWY), 93-SRNP-6234 (1♀, UWY), 95-SRNP-8365 (1♀, UWY), 98-SRNP-5304 (1♂, UWY); COSTA RICA: Cartago Prov.: Turrialba: malaise trap: coll. 11-VI-1976 M. Wasbauer (1♀, INHS).

*Other material examined*.—COSTA RICA: Area de Conservación Guanacaste: (at

least one ♀, ♂ each for the following) 87-SRNP-1008; 91-SRNP: 2279, 2519, 2722, 2728; 92-SRNP: 2324, 2743, 2744, 2746, 2747, 2756, 2757, 2758, 2760, 2763, 2767, 2768, 2769, 3394, 3404, 3919, 3988, 3990, 3991, 3994, 3996, 3999, 4002, 4006, 4007, 4011, 4012, 4013, 4014, 4017, 4021, 4030, 4033, 4034, 4037, 4038, 4039, 4040, 4127, 4132, 4144, 4145, 4392, 4407, 4928, 4929, 4932, 4937, 4941, 4945, 4954; 93-SRNP: 1014, 3739.1, 3743, 4416, 5194, 5201, 5203, 5207, 5216, 5219, 5220, 5221, 5738, 6226, 6228, 6229, 6234, 6428, 6431, 6433, 6439, 6446, 6447, 6458, 6459, 6464, 6470, 6606, 6610, 6611, 6662, 6987, 6989, 7345; 94-SRNP: 7378, 7383, 7395, 7396, 8346; 95-SRNP: 4237, 4238, 4239, 8100, 8354, 8365, 8368, 8376, 8381; 96-SRNP: 8351, 8352, 8445, 8447, 8451, 8912, 8913, 8914, 8915, 8916, 8917, 8918, 8919, 8920, 8921, 8923, 8924, 8925, 8927, 9136, 9141, 9144, 9148, 9283, 9877, 9878, 9879, 9881, 9882, 9883, 9884, 10081, 10591; 97-SRNP: 9257, 9261, 9265, 9267, 9469, 9479, 9485, 9503, 9833, 9835, 9838, 9840, 4740; 98-SRNP: 5288, 5298, 5299, 5300, 5301, 5304, 5507, 5509, 5511, 00-SRNP-3568; COSTA RICA: Ctgo. Turrialba: 600m: coll. II-80 H. and A. Howden (1♀, CNC).

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